09/624,845

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 NEWS  1          Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2  Sep 17  IMSworld Pharmaceutical Company Directory name change
                  to PHARMASEARCH
 NEWS  3  Oct 09  Korean abstracts now included in Derwent World Patents
                  Index
 NEWS  4  Oct 09  Number of Derwent World Patents Index updates increased
 NEWS  5  Oct 15  Calculated properties now in the REGISTRY/ZREGISTRY File
 NEWS  6  Oct 22  Over 1 million reactions added to CASREACT
 NEWS  7  Oct 22  DGENE GETSIM has been improved
 NEWS  8  Oct 29  AAASD no longer available
 NEWS  9  Nov 19  New Search Capabilities  USPATFULL and USPAT2
 NEWS 10  Nov 19  TOXCENTER(SM) - new toxicology file now available on STN
 NEWS 11  Nov 29  COPPERLIT now available on STN
 NEWS 12  Nov 29  DWPI revisions to NTIS and US Provisional Numbers
 NEWS 13  Nov 30  Files VETU and VETB to have open access
 NEWS 14  Dec 10  WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
 NEWS 15  Dec 10  DGENE BLAST Homology Search
 NEWS 16  Dec 17  WELDASEARCH now available on STN
 NEWS 17  Dec 17  STANDARDS now available on STN
 NEWS 18  Dec 17  New fields for DPCI
 NEWS 19  Dec 19  CAS Roles modified
 NEWS 20  Dec 19  1907-1946 data and page images added to CA and CAplus
 NEWS 21  Jan 25  BLAST(R) searching in REGISTRY available in STN on the Web
 NEWS 22  Jan 25  Searching with the P indicator for Preparations
 NEWS 23  Jan 29  FSTA has been reloaded and moves to weekly updates
 NEWS 24  Feb 01  DKILIT now produced by FIZ Karlsruhe and has a new update
                  frequency
 NEWS 25  Feb 19  Access via Tymnet and SprintNet Eliminated Effective 3/31/02
 NEWS 26  Mar 08  Gene Names now available in BIOSIS

 NEWS EXPRESS  February 1 CURRENT WINDOWS VERSION IS V6.0d,
               CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
               AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
 NEWS LOGIN    Welcome Banner and News Items
 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

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=> file medline caplus embase biosis
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                      ENTRY     SESSION
FULL ESTIMATED COST                                    0.15        0.15

FILE 'MEDLINE' ENTERED AT 08:30:06 ON 22 MAR 2002

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=> s Edge A?/au
L1          225 EDGE A?/AU

=> sl1 and cardiac
SL1 IS NOT A RECOGNIZED COMMAND
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=> s l1 and cardiac
L2            5 L1 AND CARDIAC

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3            3 DUP REM L2 (2 DUPLICATES REMOVED)

=> dis l3 1-3 ibib abs

L3   ANSWER 1 OF 3  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:        2001:73649  CAPLUS
TITLE:                   Muscle cells and their use in cardiac repair
INVENTOR(S):             Edge, Albert
PATENT ASSIGNEE(S):      Diacrin, Inc., USA
SOURCE:                  PCT Int. Appl.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:
```

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2001007568 | A2 | 20010201 | WO 2000-US20129 | 20000724 |
| WO 2001007568 | A3 | 20010809 | | |

W: AU, CA, JP
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRIORITY APPLN. INFO.: US 1999-145849P P 19990723

AB Muscle cells and methods for using the muscle cells are provided. In one embodiment, the invention provides transplantable skeletal muscle cell compositions and their methods of use. In one embodiment, the muscle cells can be transplanted into patients having disorders characterized by insufficient **cardiac** function, e.g., congestive heart failure, in a subject by administering the skeletal myoblasts to the subject. The muscle cells can be autologous, allogeneic, or xenogeneic to the recipient.

L3 ANSWER 2 OF 3 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001265854 MEDLINE
DOCUMENT NUMBER: 21193152 PubMed ID: 11294813
TITLE: Cell therapy attenuates deleterious ventricular remodeling and improves **cardiac** performance after myocardial infarction.
AUTHOR: Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531

AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal myoblasts would (1) result in viable myoblast implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) myoblasts were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo **cardiac** function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of myoblast graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal myoblasts form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic myoblast implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.

L3 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:112448 BIOSIS
DOCUMENT NUMBER: PREV200100112448
TITLE: Skeletal myoblast implantation attenuates post-MI ventricular remodeling and improves **cardiac** performance.
AUTHOR(S): Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
CORPORATE SOURCE: (1) Boston Univ Sch of Medicine, Boston, MA USA
SOURCE: Circulation, (October 31, 2000) Vol. 102, No. 18 Supplement, pp. II.357. print.
Meeting Info.: Abstracts from Scientific Sessions 2000 New Orleans, Louisiana, USA November 12-15, 2000
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

```
=> s l1 and fiboblas?
L4            0 L1 AND FIBOBLAS?

=> s l1 and fibroblas?
L5            1 L1 AND FIBROBLAS?

=> dis l1 ibib bas
'BAS' IS NOT A VALID FORMAT
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=> dis l1 ibib abs

L1   ANSWER 1 OF 225      MEDLINE
ACCESSION NUMBER:    2001265854      MEDLINE
DOCUMENT NUMBER:     21193152   PubMed ID: 11294813
TITLE:               Cell therapy attenuates deleterious ventricular remodeling
                     and improves cardiac performance after myocardial
                     infarction.
AUTHOR:              Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P;
                     Edge A S; Zawadzka A; Wetzel K; Sawyer D B; Colucci
                     W S; Apstein C S; Liao R
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CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7. Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531

AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal myoblasts would (1) result in viable myoblast implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) myoblasts were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo cardiac function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of myoblast graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal myoblasts form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic myoblast implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.

=> dis l1 kwic

L1 ANSWER 1 OF 225 MEDLINE
AU Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R

=> dis l5 kwic

L5 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS
IN **Edge, Albert S. B.**; Oettinger, Henry F.
IT **Fibroblast**
(cells lacking; novel swine MHC class I genes and uses thereof)

=> s fibroblast? (P) cardiac
L6 5245 FIBROBLAST? (P) CARDIAC

=> s fibroblast? (P) (cardiac (10N) transplant? or graft?)
L7 4444 FIBROBLAST? (P) (CARDIAC (10N) TRANSPLANT? OR GRAFT?)

=> s fibroblast? (P) (cardiac (10N) (transplant? or graft?))
L8 131 FIBROBLAST? (P) (CARDIAC (10N) (TRANSPLANT? OR GRAFT?))

=> dup rem l8
PROCESSING COMPLETED FOR L8
L9 49 DUP REM L8 (82 DUPLICATES REMOVED)

=> dis l9 1-49 ibib kwic

L9 ANSWER 1 OF 49 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2002092003 MEDLINE
DOCUMENT NUMBER: 21673711 PubMed ID: 11815438
TITLE: Electrophysiological modulation of cardiomyocytic tissue by transfected fibroblasts expressing potassium channels: a novel strategy to manipulate excitability.
AUTHOR: Feld Yair; Melamed-Frank Meira; Kehat Izhak; Tal Dror; Marom Shimon; Gepstein Lior
CORPORATE SOURCE: Cardiovascular Research Laboratory, Department of Physiology, Technion, Israel.
SOURCE: CIRCULATION, (2002 Jan 29) 105 (4) 522-9. Journal code: 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
(EVALUATION STUDIES)
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200202
ENTRY DATE: Entered STN: 20020201
Last Updated on STN: 20020213
Entered Medline: 20020212

AB . . . the local electrophysiological properties of cardiac tissue. To examine the feasibility of this concept, we tested the hypothesis that transfected **fibroblasts** expressing the voltage-sensitive potassium channel Kv1.3 can modify the electrophysiological properties of cardiomyocytic cultures. METHODS AND RESULTS: A high-resolution multielectrode. . . . technique was used to assess the electrophysiological and structural properties of primary cultures of neonatal rat ventricular myocytes. The transfected **fibroblasts**, added to the cardiomyocytic cultures, caused a significant effect on the conduction properties of the hybrid cultures. These changes were. . . appearance of multiple local conduction blocks. The location of all conduction blocks correlated with the spatial distribution of the transfected **fibroblasts** assessed by vital staining. All electrophysiological changes were reversed after the application of Charybdotoxin, a specific Kv1.3 blocker. In contrast, conduction remained uniform in the control hybrid cultures when nontransfected **fibroblasts** were used. CONCLUSIONS: Transfected **fibroblasts** are able to electrically couple with cardiac myocytes, causing a significant local and reversible modification of the tissue's electrophysiological properties. More broadly, this study suggests that

transfected cellular **grafts** expressing various ionic channels may be used to modify **cardiac** excitability, providing a possible future novel cell therapy strategy.

L9 ANSWER 2 OF 49 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2002141926 IN-PROCESS
DOCUMENT NUMBER: 21848160 PubMed ID: 11859426
TITLE: Adenoviral transfer of a single donor-specific MHC class I gene to recipient bone marrow cells can induce specific immunological unresponsiveness in vivo.
AUTHOR: Fry J W; Morris P J; Wood K J
CORPORATE SOURCE: Nuffield Department of Surgery, University of Oxford, John Radcliffe Hospital, Oxford, UK.
SOURCE: GENE THERAPY, (2002 Feb) 9 (3) 220-6.
Journal code: 9421525. ISSN: 0969-7128.
PUB. COUNTRY: England: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: IN-PROCESS; NONINDEXED; Priority Journals
ENTRY DATE: Entered STN: 20020307
Last Updated on STN: 20020307
AB . . . to recipient tissue before transplantation as a means of inducing donor-specific immunological unresponsiveness. AdSV40K(b) was able to transduce both a **fibroblast** cell line and freshly isolated bone marrow cells (BMCs) resulting in cell surface expression of H2-K(b) protein. Intravenous infusion of AdSV40K(b)-transduced syngeneic CBA/Ca (H-2(k)) BMCs into CBA recipient mice treated with an anti-CD4 monoclonal antibody 27 days before **transplantation** of a fully MHC-mismatched, C57BL/10 (H-2K(b+)), **cardiac** allograft resulted in significant long-term **graft** survival when compared with mice receiving the same dose of syngeneic BMCs transduced with a control adenovirus, AdRSVbetagal. Despite the. . . MHC class I gene to recipient BMCs in combination with transient depletion of CD4(+) cells is sufficient to induce long-term **graft** survival of a fully allogeneic **cardiac graft**. In addition, detectable microchimerism is not a prerequisite for **graft** survival.

L9 ANSWER 3 OF 49 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2001574801 MEDLINE
DOCUMENT NUMBER: 21538784 PubMed ID: 11502737
TITLE: Control of myoblast proliferation with a synthetic ligand.
AUTHOR: Whitney M L; Otto K G; Blau C A; Reinecke H; Murry C E
CORPORATE SOURCE: Department of Bioengineering, University of Washington, Seattle, Washington 98195-7335, USA.
CONTRACT NUMBER: HL07312 (NHLBI)
K08HL03094 (NHLBI)
P01HL03174 (NHLBI)
R01HL61553 (NHLBI)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Nov 2) 276 (44) 41191-6.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011030
Last Updated on STN: 20020123
Entered Medline: 20011207
AB . . . control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast** growth factor receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast** growth factor (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked. . . . from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast** growth factor receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast **grafting** may allow control over **graft** size and ultimately improve **cardiac** function.

L9 ANSWER 4 OF 49 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2001401292 MEDLINE
DOCUMENT NUMBER: 21348761 PubMed ID: 11455252
TITLE: Mast cells in acute and chronic rejection of rat cardiac allografts--a major source of basic fibroblast growth factor.
AUTHOR: Koskinen P K; Kovanen P T; Lindstedt K A; Lemstrom K B
CORPORATE SOURCE: Cardiopulmonary Research Group of the Transplantation Laboratory, University of Helsinki Central Hospital, P.O. Box 21 (Haartmaninkatu 3), FIN-00014, Helsinki, Finland.. Petri.Koskinen@Helsinki.fi
SOURCE: TRANSPLANTATION, (2001 Jun 27) 71 (12) 1741-7.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200108
ENTRY DATE: Entered STN: 20010813
Last Updated on STN: 20010813
Entered Medline: 20010809
AB . . . this study was to investigate the role of mast cells in the development of acute and chronic rejection in rat **cardiac** allografts. METHODS: In the acute rejection model, **transplant** recipients were not treated with immunosuppressants, and the grafts were removed 5 days after transplantation at the time of severe. . . and interstitial mast cells and the intensity of intimal thickening. The majority of mast cells showed positive immunoreactivity to basic **fibroblast** growth factor (bFGF). Macrophage bFGF expression was not so prominent, but macrophages were more frequent in numbers. Tumor necrosis factor-alpha. . .

L9 ANSWER 5 OF 49 MEDLINE
ACCESSION NUMBER: 2001387513 MEDLINE
DOCUMENT NUMBER: 21336969 PubMed ID: 11443589
TITLE: Statins as immunosuppressive agents.
AUTHOR: Kobashigawa J A

CORPORATE SOURCE: Division of Cardiology University of California at Los Angeles Medical Center 100 UCLA Medical Plaza, #630 Los Angeles, CA 90095.
SOURCE: LIVER TRANSPLANTATION, (2001 Jun) 7 (6) 559-61.
Journal code: DK0; 100909185. ISSN: 1527-6465.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200109
ENTRY DATE: Entered STN: 20011001
Last Updated on STN: 20011001
Entered Medline: 20010927

AB BACKGROUND: Coronary artery disease in the **transplanted** heart, also known as **cardiac** allograft vasculopathy, is one of the major causes of mortality late after heart transplantation. This accelerated form of atherosclerosis also. . . and that this in turn represses activation of T-lymphocytes and other cell types including primary human smooth muscle cells and **fibroblasts**, as well as in established cell lines such as ThP1, melanomas, and HeLa cells. CONCLUSION: In addition to previous clinical. . .

L9 ANSWER 6 OF 49 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2001226294 MEDLINE
DOCUMENT NUMBER: 21112869 PubMed ID: 11157717
TITLE: Association of thrombospondin-1 and cardiac allograft vasculopathy in human cardiac allografts.
AUTHOR: Zhao X M; Hu Y; Miller G G; Mitchell R N; Libby P
CORPORATE SOURCE: Cardiovascular Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.
CONTRACT NUMBER: HL-43364 (NHLBI)
HL-53771 (NHLBI)
T32-HL-07604 (NHLBI)
SOURCE: CIRCULATION, (2001 Jan 30) 103 (4) 525-31.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200104
ENTRY DATE: Entered STN: 20010502
Last Updated on STN: 20010521
Entered Medline: 20010426

AB BACKGROUND: Despite the expression of angiogenic growth factors in **transplanted** hearts, neovessel formation appears scant. We therefore hypothesized that **cardiac** allografts contain endogenous inhibitors of angiogenesis. In particular, we tested the involvement in cardiac allografts of thrombospondin-1 (TSP-1), a matrix. . . . in cardiac allografts, predominantly in cardiac myocytes and neointimal SMCs. In vitro experiments demonstrated that T cells expressed TSP-1, acidic **fibroblast** growth factor, and vascular endothelial cell growth factor on allogeneic stimulation. Cytokines known to be elevated in cardiac allografts (interleukin-1beta,. . .

L9 ANSWER 7 OF 49 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 2001242196 MEDLINE
DOCUMENT NUMBER: 21242865 PubMed ID: 11343976
TITLE: Failure to down-regulate intragraft cytokine mRNA expression shortly after clinical heart transplantation is associated with high incidence of acute rejection.
AUTHOR: de Groot-Kruseman H A; Baan C C; Loonen E H; Mol W M; Niesters H G; Maat A P; Balk A H; Weimar W
CORPORATE SOURCE: Department of Internal Medicine, University Hospital Rotterdam-Dijkzigt, Rotterdam, The Netherlands.. hadegroot@inwl.azr.nl
SOURCE: JOURNAL OF HEART AND LUNG TRANSPLANTATION, (2001 May) 20 (5) 503-10.
Journal code: A0Q; 9102703. ISSN: 1053-2498.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200107
ENTRY DATE: Entered STN: 20010723
Last Updated on STN: 20010723
Entered Medline: 20010719

AB . . . immunosuppression, and rejection. METHODS: We sampled endomyocardial biopsies at 30 minutes (EMB 0) and at 1 week (EMB 1) after **transplantation** from 20 **cardiac** allograft recipients. Intragraft monocyte chemoattractant protein (MCP-1) and basic **fibroblast** growth factor (bFGF) mRNA expression levels were quantitatively measured using competitive template Reverse-transcriptase polymerase chain reaction (RT-PCR). RESULTS: We measured. . .

L9 ANSWER 8 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:554470 CAPLUS
DOCUMENT NUMBER: 134:236130
TITLE: Altered expression of matrix metalloproteinases in pig-to-primate xenotransplanted hearts
AUTHOR(S): Tsukioka, K.; Suzuki, J.; Kawauchi, M.; Wada, Y.; Zhang, T.; Endoh, M.; Takayama, K.; Takamoto, S.; Isobe, M.; Amano, J.
CORPORATE SOURCE: Second Department of Surgery, Shinshu University, Nagano, Japan
SOURCE: Transplantation Proceedings (2000), 32(5), 996-998
CODEN: TRPPA8; ISSN: 0041-1345
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A study was conducted to clarify the roles of matrix metalloproteinases (MMPs) and tissue inhibitors of metalloproteinases (TIMPs) in xenograft rejection by performing pig-to-monkey **cardiac transplantation** and subsequent immunohistochem. study. Findings indicated that both **fibroblasts** and smooth muscle cells in xenograft rejection are differentiated from immature mesenchymal cells. It was shown that altered balance of MMPs and TIMPs was induced in mesenchymal cells before morphol. changes became elicited and contributed to severe tissue remodeling and arterial degrdn. in delayed xenograft rejection (DXR).

L9 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 7
ACCESSION NUMBER: 2001:1467 CAPLUS
DOCUMENT NUMBER: 134:338793
TITLE: The cytoskeleton and related proteins in the human failing heart
AUTHOR(S): Kostin, Sawa; Hein, Stefan; Arnon, Ejal; Scholz, Dimitri; Schaper, Jutta
CORPORATE SOURCE: Max Planck Institute, Bad Nauheim, D-61231, Germany
SOURCE: Heart Failure Reviews (2000), 5(3), 271-280
CODEN: HFREFC; ISSN: 1382-4147
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A review with 64 refs. In addn. to functional alterations, heart failure has a structural basis as well. This concerns all components of the cardiac myocytes as well as the extracellular space. Proteins of the cardiomyocyte can be subdivided in 5 different categories: (1) Contractile proteins including myosin, actin, tropomyosin and the troponins. (2) Sarcomeric skeleton: titin, myosin binding protein C, .alpha.-actinin, myomesin, and M-protein. (3) True "cytoskeletal" proteins: tubulin, desmin and actin. (4) Membrane-assocd. proteins: dystrophin, spectrin, talin, vinculin, ankyrin and others. (5) Proteins of the intercalated disk: desmosomes consisting of desmoplakin, desmocollin, desmoglein and desmin; adherens junctions with N-cadherin, the catenins and vinculin, and gap junctions with connexin. Failing myocardium obtained from patients undergoing **cardiac transplantation** exhibits ultrastructural degeneration and an altered nucleus/cytoplasm relation. The contractile proteins and those of the sarcomeric skeleton, esp. titin, are downregulated, the cytoskeletal proteins desmin and tubulin and membrane-assocd. proteins such as vinculin and dystrophin are upregulated and those of the intercalated disk are irregularly arranged. Elevation of cytoskeletal proteins correlates well with diastolic and contractile dysfunction in these patients. The enlarged interstitial space contains fibrosis, i.e. accumulations of **fibroblasts** and extracellular matrix components, in addn. to macrophages and microvascular elements. Loss of the contractile machinery and related proteins such as titin and .alpha.-actinin may be the first and decisive event initiating an adaptive increase in cytoskeleton and membrane assocd. components. Fibrosis may be stimulated by subcellular degeneration. The hypothesis is put forward that all proteins of the different myocardial compartments contribute to the deterioration of cardiac function in heart failure.

L9 ANSWER 10 OF 49 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 2000062646 MEDLINE
DOCUMENT NUMBER: 20062646 PubMed ID: 10595950
TITLE: Longitudinal analysis of **fibroblast** growth factor expression after **transplantation** and association with severity of **cardiac** allograft vasculopathy.
AUTHOR: Miller G G; Davis S F; Atkinson J B; Chomsky D B; Pedroso P; Reddy V S; Drinkwater D C; Zhao X M; Pierson R N
CORPORATE SOURCE: Department of Medicine Vanderbilt University Medical School, Nashville, TN 37232-2605, USA.
CONTRACT NUMBER: RO1-HL-53771 (NHLBI)
SOURCE: CIRCULATION, (1999 Dec 14) 100 (24) 2396-9.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20010521
Entered Medline: 19991227

TI Longitudinal analysis of **fibroblast** growth factor expression after **transplantation** and association with severity of **cardiac** allograft vasculopathy.

L9 ANSWER 11 OF 49 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 2000037693 MEDLINE
DOCUMENT NUMBER: 20037693 PubMed ID: 10573069
TITLE: Immunological characterization of anti-endothelial cell antibodies induced by cytomegalovirus infection.
AUTHOR: Toyoda M; Petrosian A; Jordan S C
CORPORATE SOURCE: Transplant Immunology Laboratory, Ahmanson Pediatric Center, Cedars-Sinai Medical Center/UCLA School of Medicine, Los Angeles, California 90048, USA.
CONTRACT NUMBER: 1U01-AI37313-01 (NIAID)
1U01-AI40129-01 (NIAID)
SOURCE: TRANSPLANTATION, (1999 Nov 15) 68 (9) 1311-8.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991202

AB . . . that the levels of anti-endothelial cell antibodies (AECA) determined by an enzyme immunoassay are elevated during cytomegalovirus (CMV) infection in **cardiac** and renal **transplant** recipients. In a separate study, high levels of AECA are associated with higher frequency of humoral allograft rejection (AR), chronic AR and lower 2 year allograft survival in **cardiac transplant** recipients. These results suggests that high levels of AECA produced during CMV infection may have a pathogenic role or be. . . and after CMV infection. AECA(+) plasma reacted with multiple antigens expressed not only on endothelial cells but also on human **fibroblasts**, keratinocytes, platelets (PLs), peripheral blood mononuclear cells (PBMCs), Raji cells and THP-1 cells. Each individual's AECA(+) plasma showed different patterns. . .

L9 ANSWER 12 OF 49 MEDLINE DUPLICATE 10
ACCESSION NUMBER: 1999436288 MEDLINE
DOCUMENT NUMBER: 99436288 PubMed ID: 10504639
TITLE: Petal cell transplantation: a comparison of three cell types.
AUTHOR: Sakai T; Li R K; Weisel R D; Mickle D A; Jia Z Q; Tomita S; Kim E J; Yau T M
CORPORATE SOURCE: Division of Cardiovascular Surgery, Center for

Cardiovascular Research, Toronto General Hospital, Toronto, Ontario, Canada.
SOURCE: JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1999 Oct) 118 (4) 715-24.
Journal code: K9J; 0376343. ISSN: 0022-5223.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991130

AB . . . heart function. The mechanism by which this occurs, however, has not been elucidated. To investigate possible mechanisms by which cell **transplantation** may improve heart function, we compared **cardiac** function after **transplantation** of 3 different fetal cell types: cardiomyocytes, smooth muscle cells (nonstriated muscle cells), and **fibroblasts** (noncontractile cells). METHODS: A left ventricular scar was created by cryoinjury in adult rats. Four weeks after injury, cultured fetal ventricular cardiomyocytes (n = 13), enteric smooth muscle cells (n = 10), skin **fibroblasts** (n = 10), or culture medium (control, n = 15 total) were injected into the myocardial scar. All rats received. . . an end-diastolic volume of 0.2 mL, developed pressures in cardiomyocytes group were significantly greater than smooth muscle cells and skin **fibroblasts** groups (cardiomyocytes, 134% +/- 22% of control; smooth muscle cells, 108% +/- 14% of control; skin **fibroblasts**, 106% +/- 17% of control; P =.0001), as were +dP/dt(max) (cardiomyocytes, 119% +/- 37% of control; smooth muscle cells, 98% +/- 18% of control; skin **fibroblasts**, 92% +/- 11% of control; P =. 0001) and -dP/dt(max) (cardiomyocytes, 126% +/- 29% of control; smooth muscle cells, 108% +/- 19% of control; skin **fibroblasts**, 99% +/- 16% control; P =.0001). CONCLUSIONS: Fetal cardiomyocytes transplanted into myocardial scar provided greater contractility and relaxation than fetal smooth muscle cells or fetal **fibroblasts**. The contractile and elastic properties of transplanted cells determine the degree of improvement in ventricular function achievable with cell transplantation.

L9 ANSWER 13 OF 49 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 1999334247 MEDLINE
DOCUMENT NUMBER: 99334247 PubMed ID: 10405775
TITLE: Inhibition of human cardiac fibroblast mitogenesis by blockade of mitogen-activated protein kinase and phosphatidylinositol 3-kinase.
AUTHOR: Hafizi S; Chester A H; Yacoub M H
CORPORATE SOURCE: Department of Cardiothoracic Surgery, Imperial College of Science, Technology and Medicine, Middlesex, United Kingdom.
SOURCE: CLINICAL AND EXPERIMENTAL PHARMACOLOGY AND PHYSIOLOGY, (1999 Jul) 26 (7) 511-3.
Journal code: DD8; 0425076. ISSN: 0305-1870.
PUB. COUNTRY: Australia
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199908
ENTRY DATE: Entered STN: 19990827
Last Updated on STN: 19990827
Entered Medline: 19990817

AB 1. Interstitial **fibroblast** proliferation is an elemental feature in the development of cardiac fibrosis. The effects of inhibitors of the intracellular signalling proteins,. . . kinase involved in the mitogen-activated protein kinase (MAPK) pathway and phosphatidylinositol 3-kinase (PI3-K), were tested on growth of cultured human **cardiac fibroblasts**. 2. **Cardiac fibroblasts** were isolated from **transplant** recipient myocardium and made quiescent by serum deprivation for 48 h. Cells were incubated for 24 h with the inhibitors. . . (20-24 h). 3. Both compounds markedly inhibited both basal and PDGF-stimulated increases in DNA synthesis in a concentration-dependent manner. Cardiac **fibroblast** DNA synthesis was reduced to near control levels by PD 098059, while it was inhibited completely by LY294002. 4. These results implicate the importance of MAPK and PI3-K activation in the signal transduction pathways necessary for cardiac **fibroblast** replication.

L9 ANSWER 14 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1999371150 EMBASE
TITLE: [Coxsackie B viruses and human heart diseases].
LE ROLE DES COXSACKIEVIRUS B DANS LES PATHOLOGIES CARDIAQUES HUMAINES.
AUTHOR: Andreoletti L.; Wattre P.
CORPORATE SOURCE: L. Andreoletti, Laboratoire de Virologie, CHRU de Lille, 59037 Lille Cedex, France. landreoletti@chru-lille.fr
SOURCE: Virologie, (1999) 3/4 (309-321).
Refs: 57
ISSN: 1267-8694 CODEN: VIROFD
COUNTRY: France
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 004 Microbiology
018 Cardiovascular Diseases and Cardiovascular Surgery
LANGUAGE: French
SUMMARY LANGUAGE: English; French

AB Coxsackie B viruses (CVB), Picornaviridae, are small RNA viruses which can infect myocytes, cardiac **fibroblasts** and vascular endothelial cells. Human CVB infections are common and frequently asymptomatic. However in infants, these viruses are the major. . . cardiomyopathy, and in 30 % of adult patients suffering from chronic coronary disease. The etiological role of CVB in chronic **cardiac** pathologies, leading indications for heart **transplantation**, remains controversial. However, experimentally induced-coxsackie B3 viruses chronic **cardiac** infection in various murine models demonstrated a persistent endomyocardial infection which could be explained by a restricted viral replication (defective. . .

L9 ANSWER 15 OF 49 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 2000024278 MEDLINE
DOCUMENT NUMBER: 20024278 PubMed ID: 10560488
TITLE: Nuclear size of myocardial cells in end-stage cardiomyopathies.
AUTHOR: Yan S M; Finato N; Di Loreto C; Beltrami C A
CORPORATE SOURCE: Department of Pathology, University of Udine, Italy.

SOURCE: ANALYTICAL AND QUANTITATIVE CYTOLOGY AND HISTOLOGY, (1999 Apr) 21 (2) 174-80.
Journal code: ACQ; 8506819. ISSN: 0884-6812.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000111
Last Updated on STN: 20000111
Entered Medline: 19991124

AB . . . and cardiomyopathic human hearts. STUDY DESIGN: The study group consisted of 46 hearts obtained at biopsy. These patients had undergone **cardiac transplantation** for intractable congestive heart failure (18 cases with ischemic cardiomyopathy and 28 cases with idiopathic dilated cardiomyopathy). Another 10 hearts were collected at autopsy and used as control hearts according to preautopsy, autopsy and histology criteria. One hundred **fibroblasts** and 200 myocytes were evaluated in each ventricle. The nuclear area and DNA content were estimated using image cytometry. RESULTS:. . .

L9 ANSWER 16 OF 49 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 2000136492 MEDLINE
DOCUMENT NUMBER: 20136492 PubMed ID: 10672538
TITLE: Analysis of UV-B-induced DNA damage and its repair in heat-shocked skin cells.
AUTHOR: Schmidt-Rose T; Pollet D; Will K; Bergemann J; Wittern K P
CORPORATE SOURCE: Paul Gerson Unna-Skin Research Center, Beiersdorf AG, Hamburg, Germany.. schmidt@hamburg.beiersdorf.com
SOURCE: JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY. B, BIOLOGY, (1999 Nov-Dec) 53 (1-3) 144-52.
Journal code: JLI; 8804966. ISSN: 1011-1344.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200004
ENTRY DATE: Entered STN: 20000427
Last Updated on STN: 20000427
Entered Medline: 20000418

AB . . . Numerous reports demonstrate the beneficial effects of heat-shock protein induction on cell survival under toxic or oxidative stress, e.g., in **cardiac** and cerebral ischemia or prior to organ **transplantation**. However, there is little data on the effects of heat treatment on damage caused by UV irradiation. Applying three independent. . . C) on the initial extent of UV-B-induced DNA damage and its subsequent repair. For cultured human epidermal keratinocytes and dermal **fibroblasts** we can show reduced levels of nucleotide-excision-repair-associated DNA strand incision in the comet assay. Moreover, immunostaining and flow cytometric quantitation. . . dimers immediately and one day after irradiation, respectively, reveal that the initial DNA damage is not (keratinocytes) or only moderately ( **fibroblasts**) lower in heat-shocked cells as compared to untreated controls. However, excision repair of dimers is significantly attenuated during the first. . . summary, heat treatment (1 h, 43 degrees C) inducing heat-shock proteins reduces nucleotide excision repair of UV-B-mediated DNA lesions in **fibroblasts** and keratinocytes during the following 24 h. This is not necessarily caused by elevated heat-shock protein levels themselves. Possibly the. . .

L9 ANSWER 17 OF 49 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:36952 BIOSIS
DOCUMENT NUMBER: PREV200000036952
TITLE: Basic **Fibroblast** Growth Factor and differentiation of fetal **cardiac** myocytes. A potential improvement for fetal cell **transplant** therapy.
AUTHOR(S): Patterson, Michael J. (1); Oleg, Kopyov (1); Robert, Kloner A. (1)
CORPORATE SOURCE: (1) Good Samaritan Hosp, Los Angeles, CA USA
SOURCE: Circulation, (Nov. 2, 1999) Vol. 110, No. 18 SUPPL., pp. I.164.
Meeting Info.: 72nd Scientific Sessions of the American Heart Association Atlanta, Georgia, USA November 7-10, 1999
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
TI Basic **Fibroblast** Growth Factor and differentiation of fetal **cardiac** myocytes. A potential improvement for fetal cell **transplant** therapy.

L9 ANSWER 18 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:30400 CAPLUS
DOCUMENT NUMBER: 130:246644
TITLE: Effect of low-molecular-weight heparin on development of cardiac allograft vascular disease following heart transplantation in rats
AUTHOR(S): Hisatomi, K.
CORPORATE SOURCE: Second Department of Surgery, Faculty of Medicine, Kagoshima University Hospital, Kagoshima, 890-8520, Japan
SOURCE: Transplant. Proc. (1998), 30(8), 4337-4339
CODEN: TRPPA8; ISSN: 0041-1345
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
IT 106096-92-8, Acidic FGF 106096-93-9, Basic **fibroblast** growth factor
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(effect of low-mol.-wt. heparin on development of **cardiac** allograft vascular disease following heart **transplantation** in rats in relation to growth factor assocn.)

L9 ANSWER 19 OF 49 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 1999000397 MEDLINE
DOCUMENT NUMBER: 99000397 PubMed ID: 9786431
TITLE: Ligation of HLA class I molecules on smooth muscle cells with anti-HLA antibodies induces tyrosine phosphorylation, fibroblast growth factor receptor expression and cell proliferation.

AUTHOR: Bian H; Harris P E; Reed E F
CORPORATE SOURCE: Department of Pathology, College of Physicians and Surgeons of Columbia University, New York, NY 10032, USA.
SOURCE: INTERNATIONAL IMMUNOLOGY, (1998 Sep) 10 (9) 1315-23.
Journal code: AY5; 8916182. ISSN: 0953-8178.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981230

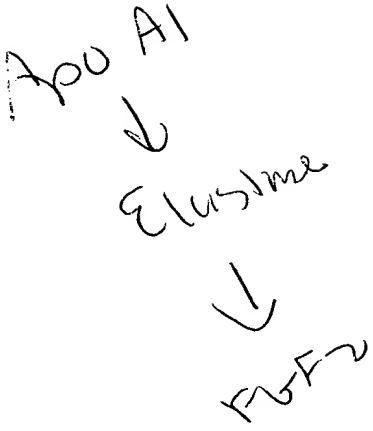
AB The development of transplant atherosclerosis, a manifestation of chronic rejection, is the major obstacle to long-term survival of **cardiac** and renal allografts. The incidence of **transplant** atherosclerosis is increased in transplant recipients producing antidonor HLA antibodies following transplantation, suggesting that anti-HLA antibodies play a role in. . . anti-HLA class I antibodies transduce signals in smooth muscle cells stimulating increased tyrosine phosphorylation of intracellular proteins and up-regulation of **fibroblast** growth factor (FGF) receptors. Antibody binding to class I molecules on smooth muscle cells is also accompanied by increased responsiveness. . .

L9 ANSWER 20 OF 49 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 1998303048 MEDLINE
DOCUMENT NUMBER: 98303048 PubMed ID: 9641346
TITLE: Gene transfer into rat heart-derived endothelial cells.
AUTHOR: Hein M; Ernst M; Moller F; Regensburger D
CORPORATE SOURCE: Department of Cardiovascular Surgery, University of Kiel, Germany.. MarcHein@compuserve.com
SOURCE: EUROPEAN JOURNAL OF CARDIO-THORACIC SURGERY, (1998 Apr) 13 (4) 460-6.
Journal code: AOJ; 8804069. ISSN: 1010-7940.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199808
ENTRY DATE: Entered STN: 19980903
Last Updated on STN: 19980903
Entered Medline: 19980827

AB OBJECTIVE: Progressive **graft** arteriosclerosis is responsible for the majority of late deaths in **cardiac transplant** recipients. Despite many investigations, the pathogenesis of this disease remains undetermined and its control inadequate. A somatic gene transfer during. . . via an aortic cannulae. The cells were purified by changing the medium 30 min after subcultivation in order to remove **fibroblasts** and smooth muscle cells. The endothelial cells (ECs) were identified by typical morphology and the uptake of DiI-Ac-LDL. The gene. . .

L9 ANSWER 21 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:539034 CAPLUS
DOCUMENT NUMBER: 129:288788
TITLE: Elastase and elastase inhibitors and pulmonary and coronary artery disease
AUTHOR(S): Rabinovitch, Marlene
CORPORATE SOURCE: Division of Cardiovascular Research, University of Toronto, Toronto, Can.
SOURCE: Int. Congr. Ser. (1998), 1155(Atherosclerosis XI), 317-326
CODEN: EXMDA4; ISSN: 0531-5131
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review with 20 refs. Background. Increased elastolytic activity is assocd. with development and progression of pulmonary hypertension in exptl. animals. Elastase inhibitors prevent the development of pulmonary vascular disease in exptl. models. Endogenous vascular elastase appears to be an enzyme 20 kDa in mol. wt., is expressed by smooth muscle cells (SMC) and is a serine proteinase related structurally to the adipocyte enzyme, adipsin. Methods. We used cell-culture systems to det. the mechanisms whereby elastase is released and induces vascular disease in pulmonary as well as coronary arteries. Results. Elastase is induced by serum factors including apolipoprotein A1 (apo A1). The signaling mechanisms involve induction of the MAP-kinase pathway with increased expression of the transcription factor AML1. Increased activity of elastase results in the release of mitogens from the extracellular matrix such as basic **fibroblast** growth factor (FGF-2). Elastases in concert with matrix metalloproteinases can proteolyze collagen leading to the upregulation of the glycoprotein, tenascin, which is necessary to amplify the proliferative response to growth factors. The mechanism involves .beta.3-integrin-mediated signaling of the matrix glycoprotein tenascin. Elastin peptides upregulate fibronectin prodn., which is necessary for smooth muscle cell migration. Elastin peptides synergize with the cytokine interleukin 1.beta. in inducing fibronectin in coronary artery SMC. Conclusions. Since our other studies have shown that elastase inhibitors prevent the development of coronary artery disease exptl. induced after **cardiac transplant**, these enzymes might be implicated in other conditions with rapid development of neointimal formation such as restenosis.




L9 ANSWER 22 OF 49 MEDLINE DUPLICATE 16
ACCESSION NUMBER: 1999065735 MEDLINE
DOCUMENT NUMBER: 99065735 PubMed ID: 9824547
TITLE: Regenerative biology and engineering: strategies for tissue restoration.
COMMENT: Comment in: Wound Repair Regen. 1998 Jul-Aug;6(4):273-5
AUTHOR: Stocum D L
CORPORATE SOURCE: Department of Biology, Indiana University-Purdue University, Indianapolis, USA.
SOURCE: WOUND REPAIR AND REGENERATION, (1998 Jul-Aug) 6 (4) 276-90. Ref: 116
Journal code: C81; 9310939. ISSN: 1067-1927.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals

ENTRY MONTH: 199901
ENTRY DATE: Entered STN: 19990128
Last Updated on STN: 19990128
Entered Medline: 19990114

AB . . . line-derived cardiomyocytes have been shown to differentiate and integrate well with the ventricular myocardium, suggesting the feasibility of using such **transplants** to restore damaged **cardiac** muscle. Diabetic symptoms in humans have been alleviated by implanting a bioartificial pancreas consisting of islet cells microencapsulated in alginate.. . . gaps. Collagenous artificial matrixes can stimulate the regeneration of dermis, and peripheral nerve grafts embedded in a fibrin clot containing **fibroblast** growth factor-1 stimulate some regeneration of spinal cord axons in adult rats. Future research in regenerative biology will focus on. . .

L9 ANSWER 23 OF 49 MEDLINE DUPLICATE 17
ACCESSION NUMBER: 1998450875 MEDLINE
DOCUMENT NUMBER: 98450875 PubMed ID: 9777700
TITLE: Methotrexate regulates ICAM-1 expression in recipients of rat cardiac allografts.
AUTHOR: Ciesielski C J; Pflug J J; Mei J; Piccinini L A
CORPORATE SOURCE: Department of Cell Biology, Neurobiology and Anatomy, Loyola University Chicago, Stritch School of Medicine, Maywood, Illinois, USA.
SOURCE: TRANSPLANT IMMUNOLOGY, (1998 Jun) 6 (2) 111-21.
Journal code: B32; 9309923. ISSN: 0966-3274.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981208

AB . . . mediates immunosuppression at low doses remains to be elucidated. MTX has been shown to inhibit the adherence of neutrophils and **fibroblasts** to endothelial cells in vitro. The hypothesis that MTX treatment may affect cellular adherence by downregulating cell adhesion molecule expression formed the rationale for these studies. Previous studies of rat **cardiac transplant** recipients in our laboratory demonstrated that low-dose MTX treatment alone significantly inhibits the expression of the leucocyte beta 2 integrin. . . Lewis (Lew) rat accessory cervical heart allografts. According to both Northern blot and immunohistochemical analysis, ICAM-1 expression was upregulated in **graft** regional lymph nodes and in the spleen of untreated **cardiac** allograft recipients within 6 h post-**transplantation**. Despite induction of VCAM-1 expression, ICAM-1 expression remained low or undetectable in cardiac allograft tissue as measured both by reverse. . . ICAM-1 may function in leucocyte trafficking through lymphoid organs, such as the lymph nodes and spleen, but not directly in **graft** leucocyte recruitment during BN to Lew rat **cardiac** allograft rejection. Despite prolonged allograft survival with cyclosporine A alone and combination cyclosporine A/MTX, these treatments did not result in. . .

L9 ANSWER 24 OF 49 MEDLINE DUPLICATE 18
ACCESSION NUMBER: 1999050354 MEDLINE
DOCUMENT NUMBER: 99050354 PubMed ID: 9833160
TITLE: Myocardial angiotensin receptors in human hearts.
AUTHOR: Regitz-Zagrosek V; Fielitz J; Fleck E
CORPORATE SOURCE: Klinik fur Kardiologie, DHZB und Charite, Berlin, Germany.
SOURCE: BASIC RESEARCH IN CARDIOLOGY, (1998) 93 Suppl 2 37-42.
Ref: 17
Journal code: 9K3; 0360342. ISSN: 0300-8428.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199902
ENTRY DATE: Entered STN: 19990223
Last Updated on STN: 19990223
Entered Medline: 19990211

AB . . . endings, and conduction tissues. AT2 has so far been found in fibrous tissue and endothelial cells. AT1 mediates myocyte hypertrophy, **fibroblast** proliferation, collagen synthesis, smooth muscle cell growth, endothelial adhesion molecule expression, and catecholamine synthesis. AT1 is downregulated in **cardiac** failure as well as in the hypertrophied **transplanted** heart, indicating that a 50% loss of AT1 does not impede cardiac hypertrophy. In heart failure therapy, AT1 antagonists differ. . .

L9 ANSWER 25 OF 49 MEDLINE DUPLICATE 19
ACCESSION NUMBER: 1998043245 MEDLINE
DOCUMENT NUMBER: 98043245 PubMed ID: 9375610
TITLE: Specific effects of estrogen on growth factor and major histocompatibility complex class II antigen expression in rat aortic allograft.
AUTHOR: Saito S; Motomura N; Lou H; Ramwell P W; Foegh M L
CORPORATE SOURCE: Department of Surgery, Georgetown University Medical Center, Washington, D.C. 20007, USA.
CONTRACT NUMBER: R01HL58896 (NHLBI)
SOURCE: JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1997 Nov) 114 (5) 803-9; discussion 809-10.
Journal code: K9J; 0376343. ISSN: 0022-5223.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199712
ENTRY DATE: Entered STN: 19980109
Last Updated on STN: 19980109
Entered Medline: 19971218

AB OBJECTIVE: **Transplant** arteriosclerosis is the major determinant for long-term survival of **cardiac transplants**. Estradiol treatment inhibits **transplant** arteriosclerosis. The objective of this study is to determine, in the absence of immunosuppression, the temporal effect of estradiol treatment on the expression of insulin-like growth factor, platelet-derived growth factor, basic **fibroblast** growth factor, and major histocompatibility complex class II antigen in rat aortic allografts. METHODS: Orthotopic

abdominal aortic allograft transplantation was. . . postoperative days 1, 3, 7, 14, or 21. The allografts were harvested and insulin-like growth factor, platelet-derived growth factor, basic **fibroblast** growth factor, and major histocompatibility complex class II antigen expression were determined by immunohistochemical staining. Myointimal thickening was measured by. . . progressively increased in all three layers of the allograft, whereas platelet-derived growth factor protein peaked at day 3 and basic **fibroblast** growth factor protein increased only moderately. Estradiol treatment inhibited the continuous increase in insulin-like growth factor expression, the peak in platelet-derived growth factor expression at day 3, the moderate-basic **fibroblast** growth factor increase at day 21, and major histocompatibility complex class II antigen expression in all three layers of the. . . and suppresses insulin-like growth factor and major histocompatibility complex class II antigen expression but not platelet-derived growth factor or basic **fibroblast** growth factor in all three layers of the allograft during the early posttransplantation alloimmune rejection phase.

L9 ANSWER 26 OF 49 MEDLINE DUPLICATE 20
ACCESSION NUMBER: 97164695 MEDLINE
DOCUMENT NUMBER: 97164695 PubMed ID: 9012502
TITLE: Zebrafish tinman homolog demarcates the heart field and initiates myocardial differentiation.
AUTHOR: Chen J N; Fishman M C
CORPORATE SOURCE: Cardiovascular Research Center, Massachusetts General Hospital, and Department of Medicine, Harvard Medical School, Charlestown 02129, USA.
CONTRACT NUMBER: NIH RO1-HL49579 (NHLBI)
NIH RO1-RR08888 (NCRR)
SOURCE: DEVELOPMENT, (1996 Dec) 122 (12) 3809-16.
Journal code: ECW; 8701744. ISSN: 0950-1991.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-S83517
ENTRY MONTH: 199702
ENTRY DATE: Entered STN: 19970306
Last Updated on STN: 20000303
Entered Medline: 19970224
AB . . . of ventral-marginal cells to become heart. Overexpression of Nkx2.5 causes formation of disproportionally larger hearts in otherwise apparently normal embryos. **Transplanted** cell expressing high levels of Nkx2.5 express **cardiac** genes even in ectopic locales. **Fibroblasts** transfected with myc-tagged Nkx2.5 express cardiac genes. These effects require the homeodomain. Thus, Nkx2.5 appears to mark the earliest embryonic heart field and to be capable of initiating the cardiogenic differentiation program. Because ectopic cells or transfected **fibroblasts** do not beat, Nkx2.5 is likely to be but one step in the determination of cardiac myocyte cell fate. Its. . .

L9 ANSWER 27 OF 49 MEDLINE DUPLICATE 21
ACCESSION NUMBER: 96247373 MEDLINE
DOCUMENT NUMBER: 96247373 PubMed ID: 8651097
TITLE: Immunohistochemical analysis of platelet-derived growth factor and basic **fibroblast** growth factor in **cardiac** biopsy and autopsy specimens of heart **transplant** patients.
AUTHOR: Shaddy R E; Hammond E H; Yowell R L
CORPORATE SOURCE: Department of Pediatrics, University of Utah School of Medicine, Salt Lake City 84113, USA.
SOURCE: AMERICAN JOURNAL OF CARDIOLOGY, (1996 Jun 1) 77 (14) 1210-5.
Journal code: 3DQ; 0207277. ISSN: 0002-9149.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199607
ENTRY DATE: Entered STN: 19960805
Last Updated on STN: 19960805
Entered Medline: 19960725
TI Immunohistochemical analysis of platelet-derived growth factor and basic **fibroblast** growth factor in **cardiac** biopsy and autopsy specimens of heart **transplant** patients.

L9 ANSWER 28 OF 49 MEDLINE DUPLICATE 22
ACCESSION NUMBER: 96382190 MEDLINE
DOCUMENT NUMBER: 96382190 PubMed ID: 8790054
TITLE: Nonmuscle and smooth muscle myosin heavy chain expression in rejected cardiac allografts. A study in rat and monkey models.
AUTHOR: Suzuki J; Isobe M; Aikawa M; Kawauchi M; Shiojima I; Kobayashi N; Tojo A; Suzuki T; Kimura K; Nishikawa T; Sakai T; Sekiguchi M; Yazaki Y; Nagai R
CORPORATE SOURCE: Third Department of Internal Medicine, Faculty of Medicine, University of Tokyo, Japan.
SOURCE: CIRCULATION, (1996 Sep 1) 94 (5) 1118-24.
Journal code: DAW; 0147763. ISSN: 0009-7322.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961025
Last Updated on STN: 19961025
Entered Medline: 19961017
AB BACKGROUND: Diagnosis of acute rejection and **graft** arteriosclerosis (chronic rejection) is critical to the success of **cardiac transplantation**, but accurate diagnosis is often difficult. We have reported that there are three types of vascular myosin heavy chain (MHC). . . METHODS AND RESULTS: To evaluate the usefulness of MHC expression for diagnosis and analysis of acute and chronic rejection, heterotopic **cardiac transplantation** was performed in rats and monkeys. Immunohistochemistry, electron microscopy, and Northern blot assay were performed to evaluate MHC expression. SMemb. . . in the rats and monkeys. These cells were also observed in areas lacking cellular infiltration. These SMemb-positive cells were activated **fibroblasts** or myofibroblasts. SMemb mRNA was enhanced parallel to the progression of acute rejection. In the coronary arteries of chronically rejected. . .

L9 ANSWER 29 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96140240 EMBASE
DOCUMENT NUMBER: 1996140240
TITLE: Preparation of hybrid muscular tissue composed of skeletal muscle cells and collagen.
AUTHOR: Okano T.; Oka T.; Matsuda T.
CORPORATE SOURCE: Department of Biomedical Engineering, Natl. Cardiovascular Ctr. Res. Inst., 5-7-1 Fujishirodai,Suita, Osaka 565, Japan
SOURCE: Japanese Journal of Artificial Organs, (1996) 25/1 (197-203).
ISSN: 0300-0818 CODEN: JNZKA7
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese
AB . . . Primary culture of satellite cells of SKCs, harvested from thigh muscle of newborn and fetal rat, failed due to contaminated **fibroblasts** which dominated at a prolonged culture period. On the other hand, hybrid muscular tissues were prepared using Mbs (C2C12 mouse. . . tissue became time-dependently dense and both collagen and cells were circumferentially oriented. We discuss the possibility of use as a **transplantation** vehicle for reconstruction of damaged and diseased skeletal and **cardiac** muscle tissues.

L9 ANSWER 30 OF 49 MEDLINE DUPLICATE 23
ACCESSION NUMBER: 96255071 MEDLINE
DOCUMENT NUMBER: 96255071 PubMed ID: 8830177
TITLE: Clinical and laboratory findings in four patients with the non-progressive hepatic form of type IV glycogen storage disease.
AUTHOR: McConkie-Rosell A; Wilson C; Piccoli D A; Boyle J; DeClue T; Kishnani P; Shen J J; Boney A; Brown B; Chen Y T
CORPORATE SOURCE: Department of Pediatrics, Duke University Medical Center, Durham, North Carolina 27710, USA.
CONTRACT NUMBER: DK 39078 (NIDDK)
M01-RR30 (NCRR)
SOURCE: JOURNAL OF INHERITED METABOLIC DISEASE, (1996) 19 (1) 51-8.
Journal code: KY8; 7910918. ISSN: 0141-8955.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961025
Last Updated on STN: 19961025
Entered Medline: 19961017
AB . . . long-term follow-up of the oldest identified patients (ages 13 and 20 years). None has developed progressive liver cirrhosis, skeletal muscle, **cardiac** or neurological involvement, and none has been **transplanted**. Branching enzyme activity was also measured in cultured skin **fibroblasts** from patients with the classic liver progressive, the early neonatal fatal, and the non-progressive hepatic presentations of GSD IV. The. . .

L9 ANSWER 31 OF 49 MEDLINE DUPLICATE 24
ACCESSION NUMBER: 96083849 MEDLINE
DOCUMENT NUMBER: 96083849 PubMed ID: 7482709
TITLE: Pharmacologically induced regression of chronic transplant rejection.
AUTHOR: Xiao F; Chong A; Shen J; Yang J; Short J; Foster P; Sankary H; Jensik S; Mital D; McChesney L; +
CORPORATE SOURCE: Department of General Surgery, Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois 60612, USA.
CONTRACT NUMBER: RO1AI34061 (NIAID)
SOURCE: TRANSPLANTATION, (1995 Nov 27) 60 (10) 1065-72.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199512
ENTRY DATE: Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951228
AB . . . shown to be a novel immunomodulatory drug that profoundly suppresses the immune response. In this study, 58 Fisher-344 rats received **cardiac transplantation** from Lewis rats. All the recipients were given CsA at 2.5 mg/kg for 5 days postoperatively. Without further treatments, the arterial intima was progressively injured by mononuclear cell infiltration and Ab deposition. Smooth muscle cell and **fibroblast** proliferation in the intima became a predominant phenomenon by day 90. CsA was ineffective in controlling the progress of arterial. . .

L9 ANSWER 32 OF 49 MEDLINE DUPLICATE 25
ACCESSION NUMBER: 95224770 MEDLINE
DOCUMENT NUMBER: 95224770 PubMed ID: 7535956
TITLE: Association of acidic fibroblast growth factor and untreated low grade rejection with cardiac allograft vasculopathy.
AUTHOR: Zhao X M; Citrin B S; Miller G G; Prist W H; Merrill W H; Fischell T A; Atkinson J B; Yeoh T K
CORPORATE SOURCE: Vanderbilt Transplant Center, Vanderbilt University School of Medicine, Nashville, Tennessee 37232, USA.
SOURCE: TRANSPLANTATION, (1995 Apr 15) 59 (7) 1005-10.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950518
Last Updated on STN: 19960129
Entered Medline: 19950511
AB **Acidic fibroblast** growth factor (aFGF) is a potent growth factor for vascular smooth muscle cells and may mediate vasculopathy in cardiac allografts. . . Therefore, we examined cardiac expression of aFGF, the number of rejection episodes, and other potential risk factors in 32 heart **transplant** patients who underwent intravascular ultrasound (IVUS) for detection of **cardiac** allograft vasculopathy (CAV). As

defined by IVUS, CAV was present in 21 patients and absent in 11 patients (follow-up time:. . .

L9 ANSWER 33 OF 49 MEDLINE DUPLICATE 26
ACCESSION NUMBER: 96371724 MEDLINE
DOCUMENT NUMBER: 96371724 PubMed ID: 8775547
TITLE: Elastase and cell matrix interactions in the pathobiology of vascular disease.
AUTHOR: Rabinovitch M
CORPORATE SOURCE: Division of Cardiovascular Research, University of Toronto, Ontario, Canada.
SOURCE: ACTA PAEDIATRICA JAPONICA, (1995 Dec) 37 (6) 657-66. Ref: 45
Journal code: 1L3; 0370357. ISSN: 0374-5600.
PUB. COUNTRY: Australia
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199612
ENTRY DATE: Entered STN: 19970128
Last Updated on STN: 20000303
Entered Medline: 19961204
AB . . . shown that both serum and endothelial factors induce EVE via tyrosine kinase intracellular signalling. Induction of EVE can release basic **fibroblast** growth factor from the extracellular matrix in an active form stimulating smooth muscle cell proliferation. Elastase activity was also observed in the process of smooth muscle cell migration and neointimal formation in coronary arteries following experimental **cardiac transplantation**. An immune/inflammatory response is observed with increased production of cytokines, tumor necrosis factor-alpha and interleukin (IL)-1 beta, reciprocally up-regulating production. . . integrins on T cells with a decoy synthetic CS-1 (fibronectin) peptide largely prevented transendothelial migration and coronary neointimal formation following **cardiac transplant**.

L9 ANSWER 34 OF 49 MEDLINE DUPLICATE 27
ACCESSION NUMBER: 94240743 MEDLINE
DOCUMENT NUMBER: 94240743 PubMed ID: 8184476
TITLE: Ventricular expression of basic **fibroblast** growth factor gene after orthotopic **cardiac transplantation**.
AUTHOR: Ationu A; Carter N
CORPORATE SOURCE: Heart Science Centre, Harefield Hospital, Middlesex, England.
SOURCE: TRANSPLANTATION, (1994 May 15) 57 (9) 1364-6.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199406
ENTRY DATE: Entered STN: 19940621
Last Updated on STN: 19940621
Entered Medline: 19940614
TI Ventricular expression of basic **fibroblast** growth factor gene after orthotopic **cardiac transplantation**.

L9 ANSWER 35 OF 49 MEDLINE DUPLICATE 28
ACCESSION NUMBER: 94365218 MEDLINE
DOCUMENT NUMBER: 94365218 PubMed ID: 7521891
TITLE: Modification of alternative messenger RNA splicing of fibroblast growth factor receptors in human cardiac allografts during rejection.
AUTHOR: Zhao X M; Frist W H; Yeoh T K; Miller G G
CORPORATE SOURCE: Vanderbilt Transplant Center, Department of Thoracic Surgery, Vanderbilt University School of Medicine, Nashville 37232.
CONTRACT NUMBER: RO1 DK-41312 (NIDDK)
SOURCE: JOURNAL OF CLINICAL INVESTIGATION, (1994 Sep) 94 (3) 992-1003.
Journal code: HS7; 7802877. ISSN: 0021-9738.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199410
ENTRY DATE: Entered STN: 19941021
Last Updated on STN: 19960129
Entered Medline: 19941013
AB Accelerated coronary atherosclerosis in **cardiac transplants** (**cardiac** allograft vasculopathy, CAV) is characterized by coronary intimal hyperplasia. Acidic **fibroblast** growth factor (aFGF) is a potent mitogen for vascular smooth muscle cells and endothelial cells, and its expression is increased. . .

L9 ANSWER 36 OF 49 MEDLINE DUPLICATE 29
ACCESSION NUMBER: 96145460 MEDLINE
DOCUMENT NUMBER: 96145460 PubMed ID: 8555616
TITLE: A new cardiac wall substitute with high affinity for fibroblasts that can induce an endothelial cell lining.
AUTHOR: Noishiki Y; Takahashi K; Yamamoto K; Mo M; Matsumoto A; Yamane Y; Miyata T
CORPORATE SOURCE: First Department of Surgery, Yokohama City University School of Medicine, Japan.
SOURCE: ASAIO JOURNAL, (1994 Jul-Sep) 40 (3) M751-6.
Journal code: BBH; 9204109. ISSN: 1058-2916.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199602
ENTRY DATE: Entered STN: 19960312
Last Updated on STN: 19960312
Entered Medline: 19960226
AB A new **cardiac** wall substitute (PC **graft**) was developed using equine pericardium cross-linked with a polyepoxy compound. Compared with glutaraldehyde cross-linked pericardium (GA graft), the PC graft showed an approximately 10 times higher affinity for **fibroblasts** as measured by our in vitro cell migration and proliferation test. Six PC

grafts (5 x 3 cm) were implanted into the right ventricular-pulmonary outflow tract position as a **cardiac** wall patch. Three GA **grafts** were used as controls. The PC grafts showed excellent handling during surgery because of their softness and elasticity. These grafts. . . luminal surface. Light microscopic observation showed that the PC graft surface was covered with a connective tissue layer and significant **fibroblast** infiltration. Approximately 60% of the area infiltrated by these **fibroblasts** was endothelialized, whereas in the GA graft, endothelialization was limited to within 2-5 mm of the suture line. Other areas were covered with a thrombus layer without any endothelial cells or **fibroblast** infiltration. PC cross-linking can maintain the biologic and mechanical properties of the original materials. The PC graft offered excellent affinity for **fibroblast** migration and proliferation, which induced an endothelial cell lining on the surface. The results of this experiment indicated that the. . .

L9 ANSWER 37 OF 49 MEDLINE DUPLICATE 30
ACCESSION NUMBER: 94320240 MEDLINE
DOCUMENT NUMBER: 94320240 PubMed ID: 7519129
TITLE: Induction of acidic fibroblast growth factor and full-length platelet-derived growth factor expression in human cardiac allografts. Analysis by PCR, in situ hybridization, and immunohistochemistry.
AUTHOR: Zhao X M; Yeoh T K; Frist W H; Porterfield D L; Miller G G
CORPORATE SOURCE: Vanderbilt Transplant Center, Nashville, Tenn.
CONTRACT NUMBER: RO1-DK-41312 (NIDDK)
SOURCE: CIRCULATION, (1994 Aug) 90 (2) 677-85.
Journal code: DAW; 0147763. ISSN: 0009-7322.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199408
ENTRY DATE: Entered STN: 19940909
Last Updated on STN: 19960129
Entered Medline: 19940826
AB BACKGROUND: Further understanding of cardiac allograft vasculopathy (CAV) is needed to improve long-term survival after **cardiac transplantation**. The diffuse hyperplasia of coronary intima characteristic of CAV suggests that growth factors may play a role in the development of CAV. **Fibroblast** growth factor (FGF) and platelet-derived growth factor (PDGF) are potent mitogens for smooth muscle cells (SMCs), and PDGF is an. . . coronary atherosclerosis. METHODS AND RESULTS: Reverse transcriptase/polymerase chain reaction (RT/PCR), in situ hybridization, and immunohistochemistry were used to determine whether **transplantation** results in increased **cardiac** expression of acidic (a) FGF, basic (b) FGF, and PDGF-A and -B chains. Sixty-eight myocardial biopsies from 36 heart transplant. . .

L9 ANSWER 38 OF 49 MEDLINE DUPLICATE 31
ACCESSION NUMBER: 95071362 MEDLINE
DOCUMENT NUMBER: 95071362 PubMed ID: 7980514
TITLE: The predominant form of fibroblast growth factor receptor expressed by proliferating human arterial smooth muscle cells in culture is type I.
AUTHOR: Xin X; Johnson A D; Scott-Burden T; Engler D; Casscells W
CORPORATE SOURCE: Vascular Cell Biology Laboratory, Texas Heart Institute, Houston.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1994 Oct 28) 204 (2) 557-64.
Journal code: 9Y8; 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199411
ENTRY DATE: Entered STN: 19950110
Last Updated on STN: 19950110
Entered Medline: 19941130
AB **Fibroblast** growth factors (FGF) and their specific receptors (FGFR) have diverse roles, including induction of proliferation in smooth muscle cells which. . . were established by the explant technique from intima/media tissue samples obtained from patients undergoing either coronary artery bypass surgery or **cardiac transplantation** procedures. Expression of FGFR isoforms was analyzed by reverse transcription-polymerase chain reaction (RT-PCR) using primers for the conserved tyrosine kinase. . .

L9 ANSWER 39 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 94105820 EMBASE
DOCUMENT NUMBER: 1994105820
TITLE: Scanning electron microscopy study of endocardial regeneration in bovine pericardial patch-grafts implanted in the canine heart.
AUTHOR: Macchiarelli G.; DiDio L.J.A.; Allen D.J.; Stolf N.G.; Pego-Fernandes P.; Motta P.M.
CORPORATE SOURCE: Department of Anatomy, University 'La Sapienza', Via A Borelli 50,00161 Rome, Italy
SOURCE: Cardioscience, (1994) 5/1 (43-49).
ISSN: 1015-5007 CODEN: CRDIEG
COUNTRY: Italy
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English
AB . . . surface displayed a continuous network of connective fibers with a few blood cells and isolated groups of spindle-shaped cells resembling **fibroblasts**. At 21-60 days, the cardiac surface showed a diffuse growth of cells on the connective fiber substratum. Regenerating cells first. . . the spreading and attachment of the lining cells on this surface rather than on the thoracic surface. As only the **cardiac** aspect displayed endocardial regeneration, pericardial patch-**grafts** should be placed with the **cardiac** surface facing the **cardiac** lumen in order to minimize the thrombogenicity of the connective tissue exposed to the blood.

L9 ANSWER 40 OF 49 MEDLINE DUPLICATE 32
ACCESSION NUMBER: 93019838 MEDLINE
DOCUMENT NUMBER: 93019838 PubMed ID: 1357122
TITLE: Assessment of rejection in orthotopic human heart

transplantation using proliferating cell nuclear antigen (PCNA) as an index of cell proliferation.
AUTHOR: Mann J M; Jennison S H; Moss E; Davies M J
CORPORATE SOURCE: British Heart Foundation Cardiovascular Pathology Unit, Department of Cardiological Sciences, St George's Hospital Medical School, London, U.K.
SOURCE: JOURNAL OF PATHOLOGY, (1992 Aug) 167 (4) 385-9.
Journal code: JLB; 0204634. ISSN: 0022-3417.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199211
ENTRY DATE: Entered STN: 19930122
Last Updated on STN: 19950206
Entered Medline: 19921113

AB Myocardial biopsies taken during the management of **cardiac transplantation** were stained for proliferating cell nuclear antigen (PCNA). Counts of PCNA-positive interstitial cells were compared, in retrospect, with the reported. . . . and which immediately preceded more severe rejection episodes showed no increase in PCNA-positive cells. The majority of PCNA-positive cells are **fibroblasts**, although in grade 2b and 3 rejection a small population of PCNA-positive T lymphocytes occurs. PCNA staining is also seen in **cardiac** myocytes immediately after **transplantation**, during rejection episodes, and late after **transplantation** in the absence of rejection. The positive PCNA staining of **cardiac** myocytes probably reflects DNA synthesis that occurs with the shift toward polyploidy in hypertrophy.

L9 ANSWER 41 OF 49 MEDLINE
ACCESSION NUMBER: 93161009 MEDLINE
DOCUMENT NUMBER: 93161009 PubMed ID: 1286409
TITLE: [Soft tissue ossification: mechanism].
L'ossification dans les tissus mous: le mecanisme.
AUTHOR: Danis A
CORPORATE SOURCE: Laboratoire de Chirurgie experimentale, Universite libre de Bruxelles.
SOURCE: BULLETIN ET MEMOIRES DE L ACADEMIE ROYALE DE MEDECINE DE BELGIQUE, (1992) 147 (6-7) 298-306; discussion 306-7.
Journal code: BOX; 7608462. ISSN: 0377-8231.
PUB. COUNTRY: Belgium
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: French
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199303
ENTRY DATE: Entered STN: 19930402
Last Updated on STN: 19930402
Entered Medline: 19930318

AB Three experiments: **cardiac** ligature, subcutaneous implantation of glass diaphragm and regenerated calcaneus tendon **transplantation**, produce new bone with marrow. The mechanism proceeds in two steps: 1) after trauma or local irritation, mesenchymal **fibroblasts** enter in division; this young population remains fibrous indefinitely; 2) those young reactive cells, submitted to local oxygen deficiency, build. . . . cells participate in this ossicle as it is rejected in a foreign host. Ectopic ossification is an active phenomenon, young **fibroblast** population building its own inductor, quite different from passive osteogenesis in which inductive message is produced outside the responsive cell.. . .

L9 ANSWER 42 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 92142372 EMBASE
DOCUMENT NUMBER: 1992142372
TITLE: Maroteaux-Lamy syndrome: (Mucopolysaccharidosis type VI) treatment by allogeneic bone marrow transplantation in 6 patients and potential for autotransplantation bone marrow gene insertion.
AUTHOR: Krivit W.
CORPORATE SOURCE: University of Minnesota, 1252 Ingerson Road,St. Paul, MN 55112, United States
SOURCE: International Pediatrics, (1992) 7/1 (47-52).
ISSN: 0885-6265 CODEN: INPDEV
COUNTRY: United States
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
022 Human Genetics
025 Hematology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Maroteaux-Lamy syndrome is a mucopolysaccharidosis due to an enzymatic deficiency of arylsulfatase B (N-acetylgalactosamine-4-sulfatase) (ASB; EC 3.1.6.1) in the leukocytes, **fibroblasts** and tissues. This storage disease is inherited as an autosomal recessive. The clinical description includes presentation with hepatosplenomegaly, dysostosis multiplex with later development of pulmonary and **cardiac** insufficiency. Bone marrow **transplantation** has successfully corrected the enzymatic defect in 6 patients. The gene for the arylsulfatase B has been characterized and cloned.. . . been constructed into which the normal gene has been inserted. The normal gene with the vector has been introduced into **fibroblasts** from Maroteaux-Lamy patients and normal, and even greater than normal, amounts of arylsulfatase B have been produced. Previously, the experimental. . .

L9 ANSWER 43 OF 49 MEDLINE DUPLICATE 33
ACCESSION NUMBER: 91214216 MEDLINE
DOCUMENT NUMBER: 91214216 PubMed ID: 1850589
TITLE: Cytomegalovirus endomyocarditis in a transplanted heart. A case report with in situ hybridization.
AUTHOR: Millett R; Tomita T; Marshall H E; Cohen L; Hannah H 3rd
CORPORATE SOURCE: Department of Pathology, Menorah Medical Center, Kansas City, MO.
SOURCE: ARCHIVES OF PATHOLOGY AND LABORATORY MEDICINE, (1991 May) 115 (5) 511-5.
Journal code: 79Z; 7607091. ISSN: 0003-9985.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199105
ENTRY DATE: Entered STN: 19910616
Last Updated on STN: 19910616

Entered Medline: 19910530

AB A 64-year-old man underwent **cardiac transplantation** for long-standing severe dilated cardiomyopathy. Postoperative complications included primary cytomegalovirus (CMV) infection with several episodes of moderate acute rejection and. . . and myocardium. With in situ hybridization, the presence of CMV was verified in the inclusions, as well as in many **fibroblasts** without inclusions. In situ hybridization is warranted in myocardial biopsy specimens when suspicious inclusions or infiltrates are present, to confirm. . .

L9 ANSWER 44 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 34
ACCESSION NUMBER: 90379239 EMBASE
DOCUMENT NUMBER: 1990379239
TITLE: Human-to-rabbit xenograft model for evaluation of recanalization techniques.
AUTHOR: Oz M.C.; Lemole G.M.; Trokel S.L.; Treat M.R.; Andrew J.E.; Barr M.L.; Popilskis S.J.; Nowygrod R.
CORPORATE SOURCE: Department of Surgery, Columbia-Presbyterian Medical Center, Box 170, 622 West 168th Street, New York, NY 10032, United States
SOURCE: Vascular Surgery, (1990) 24/8 (559-563). ISSN: 0042-2835 CODEN: VASUA
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 009 Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English

AB . . . rabbit aorta. Human atherosclerotic tissue obtained from either peripheral vascular operative specimens or from resected hearts of patients undergoing orthotopic **cardiac transplantation** were sectioned into 10 patches and 5 vessel segments and placed into the aortas of 15 rabbits. A thin platelet-fibrin. . . the graft but did not progress to occlude the graft. This layer matured over a two-week period, with ingrowth of **fibroblasts**. Endothelialization occurred only at the anastomotic sites. Rejection was characterized by development over a ten-day period of multinucleate giant foreign. . .

L9 ANSWER 45 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 88002323 EMBASE
DOCUMENT NUMBER: 1988002323
TITLE: The effect of pretreatment with a single cloned donor class I gene product on cardiac allograft survival in mice.
AUTHOR: Superina R.A.; Wood K.J.; Morris P.J.
CORPORATE SOURCE: Nuffield Department of Surgery, University of Oxford, John Radcliffe Hospital, Oxford OX3 9DU, United Kingdom
SOURCE: Transplantation, (1987) 44/5 (719-721). ISSN: 0041-1337 CODEN: TRPLAU
COUNTRY: United States
DOCUMENT TYPE: Journal
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English

AB . . . encoding the H-2 D locus product of the 'b' haplotype (Db) were used to treat prospective C3H/He (H-2(k)) recipients before **transplantation** of C57BL/10 (H-b) **cardiac** allografts, in order to investigate the effect of pretreatment with a single locus class I gene product on graft survival.. . . In this study we have found a modest but definite prolongation of cardiac allograft survival in recipients pretreated with the **fibroblasts** (H-2(k)) that were transfected with and expressed Db molecules (LDb-1 cells). The unresponsiveness induced was b haplotype-specific since third-party NZW. . . cells (LDb-1) were uniformly rejected, in the same time as NZW hearts transplanted into untreated C3H/He recipients. By using syngeneic **fibroblasts** transfected with a single class I gene of donor haplotype, we have obviated the necessity of eliminating class-II-bearing cells in. . .

L9 ANSWER 46 OF 49 MEDLINE DUPLICATE 35
ACCESSION NUMBER: 87093899 MEDLINE
DOCUMENT NUMBER: 87093899 PubMed ID: 3467407
TITLE: [Essential and iatrogenic gingival hyperplasia. Its morphology and significance]. Les hyperplasies gingivales essentielles et iatrogeniques. Morphologie et signification.
AUTHOR: Chomette G; Auriol M; Szpirglas H; Ragot J; Thomas D; Cabrol C; Vaillant J M
SOURCE: REVUE DE STOMATOLOGIE ET DE CHIRURGIE MAXILLO-FACIALE, (1986) 87 (5) 287-93. Journal code: T8M; 0201010. ISSN: 0035-1768.
PUB. COUNTRY: France
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: French
FILE SEGMENT: Dental Journals; Priority Journals
ENTRY MONTH: 198702
ENTRY DATE: Entered STN: 19900302
Last Updated on STN: 19970203
Entered Medline: 19870218

AB . . . idiopathic gingival hyperplasia (3 cases), gravidic hyperplasia (1 case), iatrogenic hyperplasia (5 cases after cyclosporin A administrated in patients with **cardiac grafts**, 2 cases after treatment by Adalat). By optic microscopy, the deep collagen base is thickened, associated sometimes to an inflammatory process. By histoenzymology, the **fibroblasts** have high activities of their oxidative enzymes and also of the enzymes of protein synthesis. The electron microscopy corroborates the numerous globular **fibroblasts** with well-developed rough endoplasmic reticulum. These results prove the main role of **fibroblasts** in these lesions and the etiopathogenesis of this hyperplasia is discussed.

L9 ANSWER 47 OF 49 MEDLINE DUPLICATE 36
ACCESSION NUMBER: 86293204 MEDLINE
DOCUMENT NUMBER: 86293204 PubMed ID: 3017116
TITLE: Myopericarditis and enhanced dystrophic cardiac calcification in murine cytomegalovirus infection.
AUTHOR: Gang D L; Barrett L V; Wilson E J; Rubin R H; Medearis D N
CONTRACT NUMBER: HL 18646 (NHLBI)
SOURCE: AMERICAN JOURNAL OF PATHOLOGY, (1986 Aug) 124 (2) 207-15. Journal code: 3RS; 0370502. ISSN: 0002-9440.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English

FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 198609
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19860917

AB . . . cells. Sublethal doses caused focal transient nonspecific chronic inflammation, followed months later by an increased frequency and extent of dystrophic **cardiac** calcification. When such latently infected hearts were heterotopically **transplanted** into uninfected animals which were then immunosuppressed (IS), a fatal generalized CMV infection followed. Cytomegalic inclusion-bearing endothelial, **fibroblastic**, and myocardial cells were seen in the intense inflammation found in hearts taken from mice 4 days after lethal inoculation and transplanted into uninfected mice, which were then IS. These findings may be relevant to human **cardiac transplantation** because they show that MCMV regularly causes **cardiac** infection with both acute and chronic consequences; chronic injury may follow a morphologically nonspecific myopericarditis which might not be attributed. . .

L9 ANSWER 48 OF 49 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1985:105484 BIOSIS
DOCUMENT NUMBER: BR28:105484
TITLE: THE PATHOGENESIS OF CYTOMEGALOVIRUS INVESTIGATED BY IN-SITU HYBRIDIZATION.
AUTHOR(S): MYERSON D; HACKMAN R C; MCDOUGALL J K
CORPORATE SOURCE: FRED HUTCHINSON CANCER RESEARCH CENTER, SEATTLE, WASHINGTON.
SOURCE: 74TH ANNUAL MEETING OF THE INTERNATIONAL ACADEMY OF PATHOLOGY (UNITED STATES-CANADIAN DIVISION), TORONTO, ONT., CANADA, MAR. 11-15, 1985. LAB INVEST, (1985) 52 (1), 46A. CODEN: LAINAW. ISSN: 0023-6837.
DOCUMENT TYPE: Conference
FILE SEGMENT: BR; OLD
LANGUAGE: English
IT Miscellaneous Descriptors
ABSTRACT HUMAN BONE MARROW **TRANSPLANT** ENDOTHELIAL CELL INFECTION DIFFUSE FOCUS FORMATION EXOCRINE PANCREAS **CARDIAC** MYOCYTES LUNG PNEUMOCYTES SPLEEN LYMPH NODE **FIBROBLASTS** MESENCHYMAL CELLS

L9 ANSWER 49 OF 49 MEDLINE DUPLICATE 37
ACCESSION NUMBER: 83216205 MEDLINE
DOCUMENT NUMBER: 83216205 PubMed ID: 6854687
TITLE: Study of the periosteal and arachnoidal aspects of dura mater implanted surgically in the ventricular wall of the canine heart.
AUTHOR: Allen D J; Zacharias A; Didio L J; McGrath A J; Gentry E; Stolf N A; Caetano E; Armelin E; Zerbini E J
SOURCE: JOURNAL OF SUBMICROSCOPIC CYTOLOGY, (1983 Apr) 15 (2) 383-99.
Journal code: KAH; 0235232. ISSN: 0022-4782.
PUB. COUNTRY: Italy
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198307
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19980206
Entered Medline: 19830708

AB After surgical removal of a portion of the **cardiac** wall, homologous dura mater **cardiac grafts** were sutured to the margins of the incision in the sternocostal wall of the right ventricle of the canine heart. . . and studied by means of SEM and TEM. The primary objectives were to study morphological changes in the dura mater **grafts** used to repair the lesions or defects in the **cardiac** wall and to compare alterations in the periosteal and arachnoidal aspects of the dura mater grafts after being implanted for. . . also an increase in the number of cellular and fibrillar components within the implant. Large numbers of macrophages and active **fibroblasts** were visible at this time along with new collagen. At the sixth week of implantation, an abundance of active **fibroblasts**, the presence of normal collagen and a darkly staining material interpreted as recently synthesized connective tissue components, fibrin deposits and/or. . .

=> s EDGE A?/au and fibroblast?
L10 1 EDGE A?/AU AND FIBROBLAST?

=> end
ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 80.41 | 80.56 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -2.48 | -2.48 |

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PASSWORD:
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* * * * * * * * * *  Welcome to STN International  * * * * * * * * * *

 NEWS  1          Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2  Sep 17  IMSworld Pharmaceutical Company Directory name change
                  to PHARMASEARCH
 NEWS  3  Oct 09  Korean abstracts now included in Derwent World Patents
                  Index
 NEWS  4  Oct 09  Number of Derwent World Patents Index updates increased
 NEWS  5  Oct 15  Calculated properties now in the REGISTRY/ZREGISTRY File
 NEWS  6  Oct 22  Over 1 million reactions added to CASREACT
 NEWS  7  Oct 22  DGENE GETSIM has been improved
 NEWS  8  Oct 29  AAASD no longer available
 NEWS  9  Nov 19  New Search Capabilities  USPATFULL and USPAT2
 NEWS 10  Nov 19  TOXCENTER(SM) - new toxicology file now available on STN
 NEWS 11  Nov 29  COPPERLIT now available on STN
 NEWS 12  Nov 29  DWPI revisions to NTIS and US Provisional Numbers
 NEWS 13  Nov 30  Files VETU and VETB to have open access
 NEWS 14  Dec 10  WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
 NEWS 15  Dec 10  DGENE BLAST Homology Search
 NEWS 16  Dec 17  WELDASEARCH now available on STN
 NEWS 17  Dec 17  STANDARDS now available on STN
 NEWS 18  Dec 17  New fields for DPCI
 NEWS 19  Dec 19  CAS Roles modified
 NEWS 20  Dec 19  1907-1946 data and page images added to CA and CAplus
 NEWS 21  Jan 25  BLAST(R) searching in REGISTRY available in STN on the Web
 NEWS 22  Jan 25  Searching with the P indicator for Preparations
 NEWS 23  Jan 29  FSTA has been reloaded and moves to weekly updates
 NEWS 24  Feb 01  DKILIT now produced by FIZ Karlsruhe and has a new update
                  frequency
 NEWS 25  Feb 19  Access via Tymnet and SprintNet Eliminated Effective 3/31/02

 NEWS EXPRESS  February 1 CURRENT WINDOWS VERSION IS V6.0d,
               CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
               AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
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FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002

=> file medline caplus embase biosis
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.15       0.15

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FILE 'CAPLUS' ENTERED AT 14:38:58 ON 02 MAR 2002
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FILE 'BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
COPYRIGHT (C) 2002 BIOLOGICAL ABSTRACTS INC.(R)

=> s Edge A?/au
L1          225 EDGE A?/AU

=> s l1 and myoblast
L2            7 L1 AND MYOBLAST

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3            5 DUP REM L2 (2 DUPLICATES REMOVED)

=> dis l3 1-5 ibib abs kwic

L3   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         2001:73649  CAPLUS
TITLE:                    Muscle cells and their use in cardiac repair
INVENTOR(S):              Edge, Albert
PATENT ASSIGNEE(S):       Diacrin, Inc., USA
SOURCE:                   PCT Int. Appl.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.       KIND  DATE          APPLICATION NO.  DATE
     ---------------  ----  --------      ---------------  --------
     WO 2001007568     A2   20010201      WO 2000-US20129  20000724
     WO 2001007568     A3   20010809
```

L10 ... 1/1/01

L8 ...

L15 # 3 #27.

#4

#16

L20 #17

W: AU, CA, JP
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
PRIORITY APPLN. INFO.: US 1999-145849 P 19990723
AB Muscle cells and methods for using the muscle cells are provided. In one embodiment, the invention provides transplantable skeletal muscle cell compositions and their methods of use. In one embodiment, the muscle cells can be transplanted into patients having disorders characterized by insufficient cardiac function, e.g., congestive heart failure, in a subject by administering the skeletal **myoblasts** to the subject. The muscle cells can be autologous, allogeneic, or xenogeneic to the recipient.
IN **Edge, Albert**
AB Muscle cells and methods for using the muscle cells are provided. In one embodiment, the invention provides transplantable skeletal muscle cell compositions and their methods of use. In one embodiment, the muscle cells can be transplanted into patients having disorders characterized by insufficient cardiac function, e.g., congestive heart failure, in a subject by administering the skeletal **myoblasts** to the subject. The muscle cells can be autologous, allogeneic, or xenogeneic to the recipient.

L3 ANSWER 2 OF 5 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001265854 MEDLINE
DOCUMENT NUMBER: 21193152 PubMed ID: 11294813
TITLE: Cell therapy attenuates deleterious ventricular remodeling and improves cardiac performance after myocardial infarction.
AUTHOR: Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531
AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal **myoblasts** would (1) result in viable **myoblast** implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) **myoblasts** were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo cardiac function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of **myoblast** graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal **myoblasts** form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic **myoblast** implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.
AU Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
AB . . . deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal **myoblasts** would (1) result in viable **myoblast** implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) **myoblasts** were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell. . . the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of **myoblast** graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not. . . therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal **myoblasts** form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic **myoblast** implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests. . .

L3 ANSWER 3 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:112448 BIOSIS
DOCUMENT NUMBER: PREV200100112448
TITLE: Skeletal **myoblast** implantation attenuates post-MI ventricular remodeling and improves cardiac performance.
AUTHOR(S): Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
CORPORATE SOURCE: (1) Boston Univ Sch of Medicine, Boston, MA USA
SOURCE: Circulation, (October 31, 2000) Vol. 102, No. 18 Supplement, pp. II.357. print.
Meeting Info.: Abstracts from Scientific Sessions 2000 New Orleans, Louisiana, USA November 12-15, 2000
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English
TI Skeletal **myoblast** implantation attenuates post-MI ventricular

remodeling and improves cardiac performance.
AU Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
IT . . .
system; heart: circulatory system; left cardiac ventricle: circulatory system; myocardium: circulatory system, muscular system; skeletal leg muscle: muscular system; skeletal **myoblast**: muscular system
IT Diseases
MI [myocardial infarction]: heart disease, vascular disease
IT Methods & Equipment
cell therapy: therapeutic method; pressure-volume curve: evaluation method; skeletal **myoblast** implantation: surgical method, tissue transplantation method
IT Miscellaneous Descriptors
cardiac performance; exercise capacity; post-MI ventricular remodeling [post-myocardial infarction ventricular remodeling];. . .

L3 ANSWER 4 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1998:18313 BIOSIS
DOCUMENT NUMBER: PREV199800018313
TITLE: Cellular therapy for myocardial repair: Successful transplantation of human **myoblasts** by intracoronary injection into the canine heart after acute myocardial infarction.
AUTHOR(S): Gold, Herman K. (1); Garabedian, Harry D. (1); Guerrero, Jose Luis (1); Sullivan, Suzanne (1); Zawadzka, Agatha; Dinsmore, Jonathan; **Edge, Albert S. B.**; Dersimonian, Harout
CORPORATE SOURCE: (1) Massachusetts General Hosp., Boston, MA USA
SOURCE: Circulation, (10/21/97, 1997) Vol. 96, No. 8 SUPPL., pp. I567.
Meeting Info.: 70th Scientific Sessions of the American Heart Association Orlando, Florida, USA November 9-12, 1997
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
TI Cellular therapy for myocardial repair: Successful transplantation of human **myoblasts** by intracoronary injection into the canine heart after acute myocardial infarction.
AU Gold, Herman K. (1); Garabedian, Harry D. (1); Guerrero, Jose Luis (1); Sullivan, Suzanne (1); Zawadzka, Agatha; Dinsmore, Jonathan; **Edge, Albert S. B.**; Dersimonian, Harout
IT Major Concepts
Cardiovascular System (Transport and Circulation)
IT Parts, Structures, & Systems of Organisms
**myoblasts**: muscular system
IT Diseases
acute myocardial infarction: heart disease, vascular disease
IT Chemicals & Biochemicals
cyclosporine: immunosuppressant - drug; prednisone:. . .

L3 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:77175 CAPLUS
DOCUMENT NUMBER: 126:88284
TITLE: Modified cells and methods for inhibiting xenograft rejection
INVENTOR(S): Donnelly, Caroline; **Edge, Albert**; Yatko, Christopher
PATENT ASSIGNEE(S): Diacrin, Incorporated, USA
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9638543 | A1 | 19961205 | WO 1996-US5519 | 19960419 |
| W: AU, CA, JP | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| CA 2217131 | AA | 19961205 | CA 1996-2217131 | 19960419 |
| AU 9657136 | A1 | 19961218 | AU 1996-57136 | 19960419 |
| EP 822977 | A1 | 19980211 | EP 1996-915336 | 19960419 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1995-427083 19950420
WO 1996-US5519 19960419
AB Improved methods for inhibiting rejection of transplanted cells in allogeneic or xenogeneic recipient subject are described. The methods involve altering at least one antigen on the surface of a donor cell prior to transplantation to reduce the immunogenicity of the cell in a recipient subject. Preferably, an MHC class I antigen on a donor cell is altered by contacting the cell with a mol. which binds to the antigen, such as an antibody or fragment or deriv. thereof. The altered cell can then be transplanted into a recipient subject such that immune cell-mediated, e.g., T cell-mediated, NK cell-mediated, and/or lymphokine activated killer (LAK) cell-mediated, rejection is inhibited.
IN Donnelly, Caroline; **Edge, Albert**; Yatko, Christopher
IT Animal cells
Animal tissue
Hematopoietic precursor cell
Hepatocyte
Islet of Langerhans
Lymphocyte
Muscle fiber
**Myoblast**
Myocyte (heart)
Natural killer cell
Neurons
Organ (animal)
Transplant (organ)
Transplant rejection
(modified cells and methods for inhibiting xenograft rejection)
IT Heart
(**myoblast**; modified cells and methods for inhibiting xenograft rejection)

=>

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=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1           225 S EDGE A?/AU
L2             7 S L1 AND MYOBLAST
L3             5 DUP REM L2 (2 DUPLICATES REMOVED)

=> skelet? (3N) myoblast?
SKELET? IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s skelet? (3N) myoblast?
L4          1946 SKELET? (3N) MYOBLAST?

=> s l4 (10N) fibroblast?
L5           123 L4 (10N) FIBROBLAST?

=> dup rem l5
PROCESSING COMPLETED FOR L5
L6            56 DUP REM L5 (67 DUPLICATES REMOVED)

=> s l6 and transplant?
L7             5 L6 AND TRANSPLANT?

=> s l6 and (transplant? or graft?)
L8             5 L6 AND (TRANSPLANT? OR GRAFT?)

=> dis l8 1-5 ibib abs kwic

L8   ANSWER 1 OF 5     MEDLINE
ACCESSION NUMBER:    2001064096     MEDLINE
DOCUMENT NUMBER:     20426151   PubMed ID: 10972335
TITLE:               Comparison of benefits on myocardial performance of
                     cellular cardiomyoplasty with skeletal
                     myoblasts and fibroblasts.
AUTHOR:              Hutcheson K A; Atkins B Z; Hueman M T; Hopkins M B; Glower
                     D D; Taylor D A
CORPORATE SOURCE:    Department of Medicine, Duke University Medical Center,
                     Durham, NC 27710, USA.
CONTRACT NUMBER:     1R01 HL63346-01 (NHLBI)
                     2R01 HL5798-02 (NHLBI)
SOURCE:              CELL TRANSPLANTATION, (2000 May-Jun) 9 (3) 359-68.
                     Journal code: B02. ISSN: 0963-6897.
PUB. COUNTRY:        United States
                     Journal; Article;` (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Priority Journals
ENTRY MONTH:         200012
ENTRY DATE:          Entered STN: 20010322
                     Last Updated on STN: 20010322
                     Entered Medline: 20001222
AB   Cellular cardiomyoplasty (CCM), or introduction of immature cells into
     terminally injured heart, can mediate repair of chronically injured
     myocardium. Several different cell types, ranging from embryonic stem
     cells to autologous skeletal myoblasts, have been successfully propagated
     within damaged heart and shown to improve myocardial performance. However,
     it is unclear if the functional advantages associated with CCM depend upon
     the use of myogenic cells or if similar results can be seen with other
     cell types. Thus, we compared indices of regional contractile (systolic)
     and diastolic myocardial performance following transplantation
     of either autologous skeletal myoblasts (Mb) or dermal
     fibroblasts (Fb) into chronically injured rabbit heart. In vivo
     left ventricular (LV) pressure (P) and regional segment length (SL) were
     determined in 15 rabbits by micromanometry and sonomicrometry 1 week
     following LV cryoinjury (CRYO) and again 3 weeks after autologous skeletal
     Mb or dermal Fb transplantation. Quantification of systolic
     performance was based on the linear regression of regional stroke work and
     end-diastolic (ED) SL. Regional diastolic properties were assessed using
     the curvilinear relationships between LVEDP and strain (epsilon) as well
     as LVEDP and EDSL. At study termination, cellular engraftment was
     characterized histologically in a blinded fashion. Indices of diastolic
     performance were improved following CCM with either Mb or Fb. However,
     only Mb transplantation improved systolic performance; Fb
     transfer actually resulted in a significant decline in systolic
     performance. These data suggest that both contractile and noncontractile
     cells can improve regional material properties or structural integrity of
     terminally injured heart, as reflected by improvements in diastolic
     performance. However, only Mb improved systolic performance in the damaged
     region, supporting the role of myogenic cells in augmenting contraction.
     Further studies are needed to define the mechanism by which these effects
     occur and to evaluate the long-term safety and efficacy of CCM with any
     cell type.
TI   Comparison of benefits on myocardial performance of cellular
     cardiomyoplasty with skeletal myoblasts and
     fibroblasts.
AB   . . . can be seen with other cell types. Thus, we compared indices of
     regional contractile (systolic) and diastolic myocardial performance
     following transplantation of either autologous skeletal
     myoblasts (Mb) or dermal fibroblasts (Fb) into
     chronically injured rabbit heart. In vivo left ventricular (LV) pressure
     (P) and regional segment length (SL) were determined. . .
     micromanometry and sonomicrometry 1 week following LV cryoinjury (CRYO)
     and again 3 weeks after autologous skeletal Mb or dermal Fb
     transplantation. Quantification of systolic performance was based
     on the linear regression of regional stroke work and end-diastolic (ED)
     SL. Regional diastolic. . . in a blinded fashion. Indices of diastolic
     performance were improved following CCM with either Mb or Fb. However,
     only Mb transplantation improved systolic performance; Fb
     transfer actually resulted in a significant decline in systolic
     performance. These data suggest that both contractile. . .
CT   Check Tags: Animal; Comparative Study; Human; Support, U.S. Gov't, P.H.S.
     *Cardiomyoplasty: MT, methods
       *Cell Transplantation
      Diastole
       *Fibroblasts: TR, transplantation
      Heart: AH, anatomy & histology
     *Heart: PH, physiology
      Microscopy, Fluorescence
     *Muscle, Skeletal: CY, cytology
```

**Muscle, Skeletal: TR, transplantation**
Myocardial Diseases: PA, pathology
Myocardial Diseases: SU, surgery
Myocardium: CY, cytology
Myocardium: PA, pathology
Rabbits
Skin: CY, cytology
Systole
**Transplantation, Autologous**

L8 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:547368 CAPLUS
DOCUMENT NUMBER: 133:140194
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. Ser. No. 863,882.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
US 1998-99994 A2 19980619
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Tissue **transplants** for repair of myocardial scars
AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
ST heart scar tissue repair **graft** gene therapy
IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-XL; tissue **transplants** for repair of myocardial scars)
IT Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)
IT Animal tissue
(artificial; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)
IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)
IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)
IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)
IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(infarction; tissue **transplants** for repair of myocardial scars)
IT Adhesives
(medical; tissue **transplants** for repair of myocardial scars)
IT Heart
(myocyte; tissue **transplants** for repair of myocardial scars)
IT Heart
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)
IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)
IT Polyester fibers, biological studies
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial

scars)
IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(scar, repair of; tissue **transplants** for repair of myocardial scars)
IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)
IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)
IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)
IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)
IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)
IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L8 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:811354 CAPLUS
DOCUMENT NUMBER: 132:54829
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Le, Ren-Ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1998-99994 A2 19980619
US 1997-863882 A2 19970528
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Tissue **transplants** for repair of myocardial scars
AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
ST heart scar tissue repair **graft** gene therapy
IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-XL; tissue **transplants** for repair of myocardial scars)
IT Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)
IT Animal tissue

(artificial; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)
IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(defects, repair of; tissue **transplants** for repair of myocardial scars)
IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)
IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)
IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(infarction; tissue **transplants** for repair of myocardial scars)
IT Adhesives
(medical; tissue **transplants** for repair of myocardial scars)
IT Heart
(myocyte; tissue **transplants** for repair of myocardial scars)
IT Heart
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)
IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)
IT Polyester fibers, biological studies
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(scarring of; tissue **transplants** for repair of myocardial scars)
IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)
IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)
IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)
IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)
IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)
IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L8 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:795115 CAPLUS
DOCUMENT NUMBER: 130:43430
TITLE: **Transplants** for myocardial scars and method and cellular preparations therefor
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9854301 | A2 | 19981203 | WO 1998-CA520 | 19980528 |
| WO 9854301 | A3 | 19990401 | | |

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,

NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
CM, GA, GN, ML, MR, NE, SN, TD, TG

| | | | | | |
|---|---|---|---|---|---|
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 | |
| AU 9876331 | A1 | 19981230 | AU 1998-76331 | 19980528 | |
| EP 985028 | A2 | 20000315 | EP 1998-923950 | 19980528 | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
| JP 2002501513 | T2 | 20020115 | JP 1999-500040 | 19980528 | |
| PRIORITY APPLN. INFO.: | | | US 1997-863882 | A2 19970528 | |
| | | | WO 1998-CA520 | W 19980528 | |

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

TI **Transplants** for myocardial scars and method and cellular preparations therefor

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

ST **transplant** heart scar cell

IT Adhesives
(biol.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Atrium (heart)
Culture media
Fibroblast
Granulation tissue
Heart
Mammal (Mammalia)
Mammalian tissue culture
Myoblast
Phosphate-buffered saline
Smooth muscle
**Transplant** (organ)
Vascular endothelium
Wound
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Enzymes, biological studies
Growth factors (animal)
Transforming growth factor .beta.1
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Platelet-derived growth factors
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(.beta.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT 50-99-7, D-Glucose, biological studies 56-81-5, 1,2,3-Propanetriol, biological studies 60-00-4, Edta, biological studies 60-24-2 9001-12-1, Collagenase 9002-07-7, Trypsin 67763-96-6, Insulin-like growth factor I 67763-97-7, Insulin-like growth factor II 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

L8 ANSWER 5 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:192507 BIOSIS
DOCUMENT NUMBER: PREV200100192507
TITLE: **Transplants** for myocardial scars and methods and cellular preparations.
AUTHOR(S): Mickle, Donald A. G. (1); Li, Ren-Ke; Weisel, Richard D.
CORPORATE SOURCE: (1) 7 McGillivary Ave., Toronto, Ont. Canada
PATENT INFORMATION: US 6110459 August 29, 2000
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Aug. 29, 2000) Vol. 1237, No. 5, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are especially useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

TI **Transplants** for myocardial scars and methods and cellular preparations.

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are especially useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

IT Methods & Equipment
cardiomyocyte culturing method: cell culture method; cardiomyocyte **grafting**: therapeutic method, **transplantation** method; cardiomyocyte isolation method: cell isolation method

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU

```
L2             7 S L1 AND MYOBLAST
L3             5 DUP REM L2 (2 DUPLICATES REMOVED)
L4          1946 S SKELET? (3N) MYOBLAST?
L5           123 S L4 (10N) FIBROBLAST?
L6            56 DUP REM L5 (67 DUPLICATES REMOVED)
L7             5 S L6 AND TRANSPLANT?
L8             5 S L6 AND (TRANSPLANT? OR GRAFT?)

=> s l6 (P) ((EGF) or (epidermal (1N) growth (1N) factor) )
L9             0 L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )

=> s l6 and laminin
L10            3 L6 AND LAMININ

=> s l6 and ((EGF) or (epidermal (1N) growth (1N) factor) )
L11            1 L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )

=> s l6 and collagen
L12            4 L6 AND COLLAGEN

=> s l4 or l11 or l10
L13         1946 L4 OR L11 OR L10

=> s l12 or l11 or l10
L14            6 L12 OR L11 OR L10

=> dup rem l14
PROCESSING COMPLETED FOR L14
L15            6 DUP REM L14 (0 DUPLICATES REMOVED)

=> dis l15 ibib abs kwic

L15  ANSWER 1 OF 6  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:   1992:103639  BIOSIS
DOCUMENT NUMBER:    BR42:43639
TITLE:              CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND
                    ITS HOMOLOGY WITH RAT GP46 CHICK HSP47 AND MOUSE J6
                    PROTEINS.
AUTHOR(S):          CLARKE E P; SANWAL B D
CORPORATE SOURCE:   DEP. BIOCHEM., UNIV. WESTERN ONTARIO, LONDON, CAN. N6H 2N9.
SOURCE:             Biochim. Biophys. Acta, (1992) 1129 (2), 246-248.
                    CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT:       BR; OLD
LANGUAGE:           English
TI   CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND ITS HOMOLOGY
     WITH RAT GP46 CHICK HSP47 AND MOUSE J6 PROTEINS.
IT   Miscellaneous Descriptors
        COMPLEMENTARY DNA SKELETAL MYOBLASTS
        FIBROBLASTS AMINO ACID SEQUENCE


=> dis l15 1-6 ibib abs kwic

L15  ANSWER 1 OF 6  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:   1992:103639  BIOSIS
DOCUMENT NUMBER:    BR42:43639
TITLE:              CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND
                    ITS HOMOLOGY WITH RAT GP46 CHICK HSP47 AND MOUSE J6
                    PROTEINS.
AUTHOR(S):          CLARKE E P; SANWAL B D
CORPORATE SOURCE:   DEP. BIOCHEM., UNIV. WESTERN ONTARIO, LONDON, CAN. N6H 2N9.
SOURCE:             Biochim. Biophys. Acta, (1992) 1129 (2), 246-248.
                    CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT:       BR; OLD
LANGUAGE:           English
TI   CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND ITS HOMOLOGY
     WITH RAT GP46 CHICK HSP47 AND MOUSE J6 PROTEINS.
IT   Miscellaneous Descriptors
        COMPLEMENTARY DNA SKELETAL MYOBLASTS
        FIBROBLASTS AMINO ACID SEQUENCE

L15  ANSWER 2 OF 6     MEDLINE
ACCESSION NUMBER:   86243312     MEDLINE
DOCUMENT NUMBER:    86243312   PubMed ID: 3013291
TITLE:              Identification of the fibroblast growth factor
                    receptor of Swiss 3T3 cells and mouse skeletal
                    muscle myoblasts.
AUTHOR:             Olwin B B; Hauschka S D
SOURCE:             BIOCHEMISTRY, (1986 Jun 17) 25 (12) 3487-92.
                    Journal code: A0G; 0370623. ISSN: 0006-2960.
PUB. COUNTRY:       United States
                    Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        198608
ENTRY DATE:         Entered STN: 19900321
                    Last Updated on STN: 19970203
                    Entered Medline: 19860820
AB   Two distinct fibroblast growth factors (FGF) were purified to homogeneity
     from bovine brain on the basis of their ability to stimulate skeletal
     muscle myoblast proliferation. These growth factors are also mitogenic for
     Swiss 3T3 cells and appear to be closely related to or identical with
     previously isolated anionic and cationic fibroblast growth factors. The
     half-maximum concentrations (EC50) for stimulation of myoblast DNA
     synthesis by the anionic and cationic growth factors were 30pM and 1pM,
     respectively. In contrast, an EC50 of 45 pM was observed for stimulation
     of 3T3 cell DNA synthesis by both growth factors. Binding of 125I-labeled
     anionic FGF was saturable with apparent Kd values of 45 pM and 11 pM and
     approximately 60 000 and 2000 receptor sites per cell for 3T3 cells and
     MM14 murine myoblasts, respectively. Unlabeled anionic and cationic FGF
     equally displaced 125I-labeled anionic FGF from 3T3 cells while cationic
     FGF was more potent than anionic FGF for displacement from skeletal muscle
     myoblasts, demonstrating that a single receptor binds the two distinct
     growth factors. Binding was specific for these factors since
     platelet-derived growth factor, insulin, insulin-like growth
     factor 1, epidermal growth factor,
     and nerve growth factor were unable to displace bound 125I-labeled anionic
     FGF from Swiss 3T3 cells. Chemical cross-linking of specifically bound
     125I-labeled anionic FGF to 3T3 cells and MM14 myoblasts identified a
     single detergent-soluble FGF receptor with an apparent molecular weight of
     165 000.
TI   Identification of the fibroblast growth factor receptor of Swiss
     3T3 cells and mouse skeletal muscle myoblasts.
```

AB . . . receptor binds the two distinct growth factors. Binding was specific for these factors since platelet-derived growth factor, insulin, insulin-like growth **factor** 1, **epidermal growth factor**, and nerve growth factor were unable to displace bound 125I-labeled anionic FGF from Swiss 3T3 cells. Chemical cross-linking of specifically. . . .

L15 ANSWER 3 OF 6 MEDLINE
ACCESSION NUMBER: 87005586 MEDLINE
DOCUMENT NUMBER: 87005586 PubMed ID: 3758484
TITLE: Role of **laminin** and fibronectin in selecting myogenic versus fibrogenic cells from skeletal muscle cells in vitro.
AUTHOR: Kuhl U; Ocalan M; Timpl R; von der Mark K
SOURCE: DEVELOPMENTAL BIOLOGY, (1986 Oct) 117 (2) 628-35. Journal code: E7T; 0372762. ISSN: 0012-1606.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198611
ENTRY DATE: Entered STN: 19900302
Last Updated on STN: 19900302
Entered Medline: 19861114

AB Growth of embryonic skeletal muscle occurs by fusion of multinucleated myotubes with differentiated, fusion-capable myoblasts. Selective recognition seems to prevent fusion of myotubes with nonmyogenic cells such as muscle fibroblasts, endothelial cells, or nerve cells, but the nature of the signal is as yet unknown. Here we provide evidence that one of the selection mechanisms may be the enhanced affinity for **laminin** of myogenic cells as compared to fibrogenic cells. Growing myotubes in myoblast cultures accumulate **laminin** and type IV **collagen** on their surface in patches and strands as the first step in assembling a continuous basal lamina on mature myofibers (U. Kuhl, R. Timpl, and K. von der Mark (1982), Dev. Biol. 93, 344-359). Fibronectin, on the other hand, assembles into an intercellular fibrous meshwork not associated with the free myotube surface. Over a brief time period (10-20 min) myoblasts from embryonic mouse thigh muscle adhere faster to **laminin** than do fibroblasts from the same tissue; these adhere faster to fibronectin. When a mixture of the cells is plated for 20 min on **laminin**/type IV **collagen** substrates, only myogenic cells adhere, giving rise to cultures with more than 90% fusion after 2 weeks; on fibronectin/type I **collagen** in the same time primarily fibroblastic cells adhere, giving rise to cultures with less than 10% nuclei in myotubes. The differential affinities of myoblasts for basement membrane constituents and of fibroblasts for interstitial connective tissue components may play a role in sorting out **myoblasts** from **fibroblasts** in **skeletal** muscle development.

TI Role of **laminin** and fibronectin in selecting myogenic versus fibrogenic cells from skeletal muscle cells in vitro.

AB . . . is as yet unknown. Here we provide evidence that one of the selection mechanisms may be the enhanced affinity for **laminin** of myogenic cells as compared to fibrogenic cells. Growing myotubes in myoblast cultures accumulate **laminin** and type IV **collagen** on their surface in patches and strands as the first step in assembling a continuous basal lamina on mature myofibers. . . the free myotube surface. Over a brief time period (10-20 min) myoblasts from embryonic mouse thigh muscle adhere faster to **laminin** than do fibroblasts from the same tissue; these adhere faster to fibronectin. When a mixture of the cells is plated for 20 min on **laminin**/type IV **collagen** substrates, only myogenic cells adhere, giving rise to cultures with more than 90% fusion after 2 weeks; on fibronectin/type I **collagen** in the same time primarily fibroblastic cells adhere, giving rise to cultures with less than 10% nuclei in myotubes. The. . . myoblasts for basement membrane constituents and of fibroblasts for interstitial connective tissue components may play a role in sorting out **myoblasts** from **fibroblasts** in **skeletal** muscle development.

CT . . .
Basement Membrane: PH, physiology
Cell Adhesion
Cell Differentiation
Cells, Cultured
Extracellular Matrix: PH, physiology
*Fibroblasts: CY, cytology
*Fibronectins: PH, physiology
*Laminin: PH, physiology
Mice
Muscles: CY, cytology
*Muscles: EM, embryology
CN 0 (Fibronectins); 0 (**Laminin**)

L15 ANSWER 4 OF 6 MEDLINE
ACCESSION NUMBER: 86059663 MEDLINE
DOCUMENT NUMBER: 86059663 PubMed ID: 2933413
TITLE: The cell substrate attachment (CSAT) antigen has properties of a receptor for **laminin** and fibronectin.
AUTHOR: Horwitz A; Duggan K; Greggs R; Decker C; Buck C
CONTRACT NUMBER: CA 10815 (NCI)
CA 19144 (NCI)
GM23244 (NIGMS)
SOURCE: JOURNAL OF CELL BIOLOGY, (1985 Dec) 101 (6) 2134-44. Journal code: HMV; 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198601
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19860103

AB The cell substrate attachment (CSAT) antigen is an integral membrane glycoprotein complex that participates in the adhesion of cells to extracellular molecules. The CSAT monoclonal antibody, directed against this complex, inhibited adhesion of cardiac and tendon **fibroblasts** and **skeletal myoblasts** to both **laminin** and fibronectin, thus implicating the CSAT antigen in adhesion to these extracellular molecules. Equilibrium gel filtration was used to explore the hypothesis that the CSAT antigen functions as a cell surface receptor for both **laminin** and fibronectin. In this technique, designed for rapidly exchanging equilfbria, the gel filtration column is pre-equilibrated with extracellular ligand to ensure receptor occupancy during its journey through the column. Both **laminin** and

fibronectin formed complexes with the CSAT antigen. The association with **laminin** was inhibited by the CSAT monoclonal antibody; the associations with both fibronectin and **laminin** were inhibited by synthetic peptides containing the fibronectin cell-binding sequence. Estimates of the dissociation constants by equilibrium gel filtration agree well with those available from other measurements. This suggests that these associations are biologically significant. SDS PAGE showed that all three glycoproteins comprising the CSAT antigen were present in the antigen-ligand complexes. Gel filtration and velocity sedimentation were used to show that the three bands comprise and oligomeric complex, which provides an explanation for their functional association. The inhibition of adhesion by the CSAT monoclonal antibody and the association of the purified antigen with extracellular ligands are interpreted as strongly implicating the CSAT antigen as a receptor for both fibronectin and **laminin** and perhaps for other extracellular molecules as well.

TI The cell substrate attachment (CSAT) antigen has properties of a receptor for **laminin** and fibronectin.

AB . . . . adhesion of cells to extracellular molecules. The CSAT monoclonal antibody, directed against this complex, inhibited adhesion of cardiac and tendon **fibroblasts** and **skeletal myoblasts** to both **laminin** and fibronectin, thus implicating the CSAT antigen in adhesion to these extracellular molecules. Equilibrium gel filtration was used to explore the hypothesis that the CSAT antigen functions as a cell surface receptor for both **laminin** and fibronectin. In this technique, designed for rapidly exchanging equilibria, the gel filtration column is pre-equilibrated with extracellular ligand to ensure receptor occupancy during its journey through the column. Both **laminin** and fibronectin formed complexes with the CSAT antigen. The association with **laminin** was inhibited by the CSAT monoclonal antibody; the associations with both fibronectin and **laminin** were inhibited by synthetic peptides containing the fibronectin cell-binding sequence. Estimates of the dissociation constants by equilibrium gel filtration agree. . . purified antigen with extracellular ligands are interpreted as strongly implicating the CSAT antigen as a receptor for both fibronectin and **laminin** and perhaps for other extracellular molecules as well.

CT . . . .
diagnostic use
*Antigens, Surface
Antigens, Surface: IM, immunology
*Cell Adhesion
Cells, Cultured
Chickens
*Extracellular Matrix: ME, metabolism
*Fibronectins: ME, metabolism
***Laminin: ME, metabolism**
Macromolecular Systems
Muscles: CY, cytology
Receptors, Fibronectin
*Receptors, Immunologic: ME, metabolism
**Receptors, Laminin**
Tendons: CY, cytology

CN 0 (Antibodies, Monoclonal); 0 (Antigens, Surface); 0 (Fibronectins); 0 (**Laminin**); 0 (Macromolecular Systems); 0 (Receptors, Fibronectin); 0 (Receptors, Immunologic); 0 (Receptors, **Laminin**)

L15 ANSWER 5 OF 6 MEDLINE
ACCESSION NUMBER: 85128115 MEDLINE.
DOCUMENT NUMBER: 85128115 PubMed ID: 6396135
TITLE: Role of muscle fibroblasts in the deposition of type-IV **collagen** in the basal lamina of myotubes.
AUTHOR: Kuhl U; Ocalan M; Timpl R; Mayne R; Hay E; von der Mark K
CONTRACT NUMBER: AM 31394 (NIADDK)
HD 00143 (NICHD)
SOURCE: DIFFERENTIATION, (1984) 28 (2) 164-72.
Journal code: E99; 0401650. ISSN: 0301-4681.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198504
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19970203
Entered Medline: 19850417

AB In cell cultures of quail, chick, or mouse skeletal muscle, both myogenic and fibrogenic cells synthesize and secrete type-IV **collagen**, a major structural component of the basal lamina. Type-IV **collagen**, together with **laminin**, forms characteristic patches and strands on the surface of developing myotubes, marking the onset of basement-membrane formation. The pattern for type-IV **collagen** and **laminin** is unique to these proteins and is not paralleled by other matrix proteins, such as fibronectin or type-I or -III **collagen**. In the present study, we used species-specific antibodies to either mouse or chick type-IV **collagen** to demonstrate the ability of fibroblast--derived type-IV **collagen** to incorporate in the basal lamina of myotubes. In combination cultures of embryonic quail **skeletal myoblasts** and mouse muscle **fibroblasts**, antibodies specific for mouse type-IV **collagen** revealed the deposition of type-IV **collagen** on the surface of quail myotubes in the pattern typical of the beginning of basement-membrane formation. Control cultures consisting of only quail muscle cells containing myoblasts and fibroblasts demonstrated no such reaction with these antibodies. Deposits of mouse type-IV **collagen** were also observed on the surface of quail myotubes when conditioned medium from mouse muscle fibroblasts was added to quail myoblast cultures. Similarly, in combination cultures of mouse myoblasts and chick muscle fibroblasts, chick type-IV-**collagen** deposits were identified on the surface of mouse myotubes. These results indicate that type-IV **collagen** synthesized by muscle fibroblasts may be incorporated into the basal lamina forming on the plasmalemma of myotubes, and may explain ultrastructural studies by Lipton on the contribution of fibroblasts to the formation of basement membranes in skeletal muscle.

TI Role of muscle fibroblasts in the deposition of type-IV **collagen** in the basal lamina of myotubes.

AB In cell cultures of quail, chick, or mouse skeletal muscle, both myogenic and fibrogenic cells synthesize and secrete type-IV **collagen**, a major structural component of the basal lamina. Type-IV **collagen**, together with **laminin**, forms characteristic patches and strands on the surface of developing myotubes, marking the onset of basement-membrane formation. The pattern for type-IV **collagen** and **laminin** is unique to these proteins and is not paralleled by other matrix proteins, such as fibronectin or type-I or -III **collagen**. In the present study, we used species-specific

antibodies to either mouse or chick type-IV **collagen** to demonstrate the ability of fibroblast--derived type-IV **collagen** to incorporate in the basal lamina of myotubes. In combination cultures of embryonic quail **skeletal myoblasts** and mouse muscle **fibroblasts**, antibodies specific for mouse type-IV **collagen** revealed the deposition of type-IV **collagen** on the surface of quail myotubes in the pattern typical of the beginning of basement-membrane formation. Control cultures consisting of only quail muscle cells containing myoblasts and fibroblasts demonstrated no such reaction with these antibodies. Deposits of mouse type-IV **collagen** were also observed on the surface of quail myotubes when conditioned medium from mouse muscle fibroblasts was added to quail myoblast cultures. Similarly, in combination cultures of mouse myoblasts and chick muscle fibroblasts, chick type-IV-**collagen** deposits were identified on the surface of mouse myotubes. These results indicate that type-IV **collagen** synthesized by muscle fibroblasts may be incorporated into the basal lamina forming on the plasmalemma of myotubes, and may explain. . .

CT Check Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
Basement Membrane: ME, metabolism
Cells, Cultured
Chick Embryo
***Collagen: ME, metabolism**
Fibroblasts: ME, metabolism
Fluorescent Antibody Technique
Histocytochemistry
Mice
Microscopy, Electron
Muscles: EM, embryology
*Muscles: ME, metabolism
Muscles: UL,. . .

RN **9007-34-5 (Collagen)**

L15 ANSWER 6 OF 6 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 80233287 EMBASE
DOCUMENT NUMBER: 1980233287
TITLE: Analysis of cartilage differentiation from skeletal muscle grown on bone matrix. I. Ultrastructural aspects.
AUTHOR: Nathanson M.A.; Hay E.D.
CORPORATE SOURCE: Dept. Anat., Harvard Med. Sch., Boston, Mass. 02115, United States
SOURCE: Developmental Biology, (1980) 78/2 (301-331).
CODEN: DEBIAO
COUNTRY: United States
DOCUMENT TYPE: Journal
FILE SEGMENT: 021 Developmental Biology and Teratology
LANGUAGE: English

AB Previous studies have demonstrated that embryonic skeletal muscle is competent to form hyaline cartilage when cultured in vitro on demineralized bone matrix. The present experiments were undertaken to determine the nature of the morphological alterations which attend this phenotypic transformation and to investigate the ultrastructural characteristics of the **myoblasts** and **fibroblasts** of **skeletal** muscle during the transformation. Nineteen-day embryonic rat limb muscles were minced and the tissue fragments explanted to bone matrix or **collagen** gels. The trauma of excision and mincing causes syncytial myotubes to degenerate and the nuclei of mononucleate cells to enter a heterochromatic 'resting stage.'. In culture, nuclei of mononucleate cells rapidly regain euchromasia. No myoblast or fibroblast cell death can be detected. On bone matrix, the entire mononucleate population transforms into fibroblast-like cells. Myoblasts are the major contributor to this population; they dissociate from the degenerate myotubes and begin to acquire endoplasmic reticulum by 24 h in vitro. The fibroblast-like morphology persists through 4 days in vitro. By 6 days in vitro some of these fibroblast-like cells acquire the phenotypic characteristics of chondrocytes, and by 10 days masses of hyaline cartilage are found. In control explants of skeletal muscle onto **collagen** gels, the heterochromatic nuclei of the mononucleated cells expand after 24 hr in vitro, but the mononucleated cells remain as myoblasts and fibroblasts and begin to regenerate skeletal muscle by 4 days in vitro. No cartilage forms. The results indicate that both myoblasts and fibroblasts have chondrogenic potential when grown on demineralized bone. It is tempting to conclude that the embryonic mesenchymal cells which give rise to skeletal muscle, cartilage, and other connective tissue of the limb have similar developmental potentials and that local influences, rather than separate cell lineages, account for the final pattern of differentiation.

AB . . . determine the nature of the morphological alterations which attend this phenotypic transformation and to investigate the ultrastructural characteristics of the **myoblasts** and **fibroblasts** of **skeletal** muscle during the transformation. Nineteen-day embryonic rat limb muscles were minced and the tissue fragments explanted to bone matrix or **collagen** gels. The trauma of excision and mincing causes syncytial myotubes to degenerate and the nuclei of mononucleate cells to enter. . . characteristics of chondrocytes, and by 10 days masses of hyaline cartilage are found. In control explants of skeletal muscle onto **collagen** gels, the heterochromatic nuclei of the mononucleated cells expand after 24 hr in vitro, but the mononucleated cells remain as. . .

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU
L2 7 S L1 AND MYOBLAST
L3 5 DUP REM L2 (2 DUPLICATES REMOVED)
L4 1946 S SKELET? (3N) MYOBLAST?
L5 123 S L4 (10N) FIBROBLAST?
L6 56 DUP REM L5 (67 DUPLICATES REMOVED)
L7 5 S L6 AND TRANSPLANT?
L8 5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9 0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10 3 S L6 AND LAMININ
L11 1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12 4 S L6 AND COLLAGEN
L13 1946 S L4 OR L11 OR L10
L14 6 S L12 OR L11 OR L10
L15 6 DUP REM L14 (0 DUPLICATES REMOVED)

=> s l6 and cultur?

```
L16          34 L6 AND CULTUR?

=> s l16 and (in (1N)vitro)
L17           1 L16 AND (IN (1N) VITRO)

=> dis l17 ibib abs kwic

L17  ANSWER 1 OF 1      MEDLINE
ACCESSION NUMBER:    95086047      MEDLINE
DOCUMENT NUMBER:     95086047    PubMed ID: 7993882
TITLE:               In vitro separation of embryonic chick
                     skeletal muscle myoblasts and
                     fibroblasts: comparison of their characteristics.
AUTHOR:              Lamosova D; Jurani M; Vanekova M
CORPORATE SOURCE:    Institute of Animal Biochemistry and Genetics, Slovak
                     Academy of Sciences, Ivanka pri Dunaji.
SOURCE:              PHYSIOLOGICAL RESEARCH, (1994) 43 (3) 157-61.
                     Journal code: AZ7; 9112413. ISSN: 0862-8408.
PUB. COUNTRY:        Czech Republic
                     Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Priority Journals
ENTRY MONTH:         199501
ENTRY DATE:          Entered STN: 19950126
                     Last Updated on STN: 19950126
                     Entered Medline: 19950117
AB   The aim of the present experiments was to test two methods of separating
     myoblasts and fibroblasts (selective plating, differential trypsinization)
     from chick embryonal skeletal muscle and to compare their characteristics.
     Ornithine decarboxylase (ODC) activity, the amount of incorporated
     [3H]leucine into proteins and incorporation of [3H]thymidine into DNA were
     significantly higher in myoblasts than in fibroblasts separated by
     selective plating. When comparing myoblasts and fibroblasts separated by
     differential trypsinization, significantly higher ODC activity and greater
     incorporation of [3H]leucine into protein, but no incorporation of
     [3H]thymidine into DNA, were found in myoblasts. Higher ODC activity and
     greater incorporation of labelled leucine were found in fibroblasts
     separated by the selective plating than in fibroblasts separated by
     differential trypsinization. The incorporation of labelled thymidine into
     DNA was higher in myoblasts separated by selective plating than in
     myoblasts obtained by differential trypsinization. The method of selective
     plating appears to be simpler and adequate for obtaining myoblastic and
     fibroblastic cell cultures with sufficiently low mutual
     contamination. The method of differential trypsinization involves a more
     drastic treatment of cells and is more time consuming.
TI   In vitro separation of embryonic chick
     skeletal muscle myoblasts and fibroblasts:
     comparison of their characteristics.
AB   . . . by differential trypsinization. The method of selective plating
     appears to be simpler and adequate for obtaining myoblastic and
     fibroblastic cell cultures with sufficiently low mutual
     contamination. The method of differential trypsinization involves a more
     drastic treatment of cells and is more. . .


=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1           225 S EDGE A?/AU
L2             7 S L1 AND MYOBLAST
L3             5 DUP REM L2 (2 DUPLICATES REMOVED)
L4          1946 S SKELET? (3N) MYOBLAST?
L5           123 S L4 (10N) FIBROBLAST?
L6            56 DUP REM L5 (67 DUPLICATES REMOVED)
L7             5 S L6 AND TRANSPLANT?
L8             5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9             0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10            3 S L6 AND LAMININ
L11            1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12            4 S L6 AND COLLAGEN
L13         1946 S L4 OR L11 OR L10
L14            6 S L12 OR L11 OR L10
L15            6 DUP REM L14 (0 DUPLICATES REMOVED)
L16           34 S L6 AND CULTUR?
L17            1 S L16 AND (IN (1N)VITRO)

=> s l4 (P)  ((FGF?) or (fibroblast (1N) growth (1N) factor) or (Transforming (1N) growth (1N) factor (1N) beta) or TGF? or (Interleukin (1N) 10) or
(IL (1N) 10) or (CTLA4 (1N) Ig) or (bcl (1N) 2))
   3 FILES SEARCHED...
L18          196 L4 (P) ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (TRAN
                 SFORMING (1N) GROWTH (1N) FACTOR (1N) BETA) OR TGF? OR (INTERLEU
                 KIN (1N) 10) OR (IL (1N) 10) OR (CTLA4 (1N) IG) OR (BCL (1N)
                 2))

=> s l18 and (cardiac or heart)
L19           27 L18 AND (CARDIAC OR HEART)

=> dup rem l19
PROCESSING COMPLETED FOR L19
L20           12 DUP REM L19 (15 DUPLICATES REMOVED)

=> dis l20 1-12 ibib abs kwic

L20  ANSWER 1 OF 12      MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:    2001574801      MEDLINE
DOCUMENT NUMBER:     21538784    PubMed ID: 11502737
TITLE:               Control of myoblast proliferation with a synthetic ligand.
AUTHOR:              Whitney M L; Otto K G; Blau C A; Reinecke H; Murry C E
CORPORATE SOURCE:    Department of Bioengineering, University of Washington,
                     Seattle, Washington 98195-7335, USA.
CONTRACT NUMBER:     HL07312 (NHLBI)
                     K08HL03094 (NHLBI)
                     P01HL03174 (NHLBI)
                     R01HL61553 (NHLBI)
SOURCE:              JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Nov 2) 276 (44)
                     41191-6.
                     Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY:        United States
                     Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Priority Journals
```

ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011030
Last Updated on STN: 20020123
Entered Medline: 20011207

AB **Skeletal myoblast** grafts can form contractile tissue to replace scar and repair injured myocardium. Although potentially therapeutic, generating reproducible and sufficiently large grafts remains a challenge. To control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast growth factor** receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast growth factor** (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked myotube formation and myosin heavy chain expression and stimulated mitogen-activated protein (MAP) kinase phosphorylation in transfected cells. Non-transfected cells differentiated normally and showed no MAP kinase phosphorylation with dimerizer treatment. Furthermore, myoblasts treated with dimerizer for 30 days in culture reduced MAP kinase phosphorylation, withdrew from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast growth factor** receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast grafting may allow control over graft size and ultimately improve **cardiac** function.

AB **Skeletal myoblast** grafts can form contractile tissue to replace scar and repair injured myocardium. Although potentially therapeutic, generating reproducible and sufficiently large. . . control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast growth factor** receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast growth factor** (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked myotube formation. . . from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast growth factor** receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast grafting may allow control over graft size and ultimately improve **cardiac** function.

L20 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:246422 CAPLUS
DOCUMENT NUMBER: 135:44536
TITLE: Differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines
AUTHOR(S): Adams, Volker; Lenk, Karsten; Schubert, Andreas; Gielen, Stephan; Schuler, Gerhard; Hambrecht, Rainer
CORPORATE SOURCE: Department of Cardiology, Heart Center, University of Leipzig, Leipzig, Germany
SOURCE: Cytokine (2001), 13(6), 342-348
CODEN: CYTIE9; ISSN: 1043-4666
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The mechanism underlying exercise intolerance in chronic **heart** failure is still unclear. An increased concn. of inflammatory cytokines could be detected in the serum of patients with chronic **heart** failure (CHF) exhibiting a correlation with the severity of the disease. The variety of mol. alterations triggered by these cytokines in the skeletal muscle is almost unknown. The study was designed to analyze the differential gene expression in skeletal muscle myoblasts after stimulation with inflammatory cytokines. L6 rat skeletal muscle myoblasts were incubated for 24 h with a combination of IL-1.beta./IFN-.gamma. and the differential gene expression profile was detd. by a PCR-based subtractive hybridization method. Out of 173 picked clones 141 different sequences could be identified. By comparison with Genebank, the identity of 73 genes (51.7%) could be confirmed, whereas the rest did not show a homol. to any known gene. Some of the identified genes are known to be altered in patients with CHF. In summary, the results of this study provide information about changes in gene expression after exposure of skeletal muscle cells to inflammatory cytokines. This information may yield a new gene pool, worthwhile to be analyzed in skeletal muscle of patients with chronic **heart** failure. (c) 2001 Academic Press.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB The mechanism underlying exercise intolerance in chronic **heart** failure is still unclear. An increased concn. of inflammatory cytokines could be detected in the serum of patients with chronic **heart** failure (CHF) exhibiting a correlation with the severity of the disease. The variety of mol. alterations triggered by these cytokines in the skeletal muscle is almost unknown. The study was designed to analyze the differential gene expression in skeletal muscle myoblasts after stimulation with inflammatory cytokines. L6 rat skeletal muscle myoblasts were incubated for 24 h with a combination of IL-1.beta./IFN-.gamma. and the differential gene expression profile was detd. by a PCR-based subtractive hybridization method. Out of 173 picked clones 141 different sequences could be identified. By comparison with Genebank, the identity of 73 genes (51.7%) could be confirmed, whereas the rest did not show a homol. to any known gene. Some of the identified genes are known to be altered in patients with CHF. In summary, the results of this study provide information about changes in gene expression after exposure of skeletal muscle cells to inflammatory cytokines. This information may yield a new gene pool, worthwhile to be analyzed in skeletal muscle of patients with chronic **heart** failure. (c) 2001 Academic Press.

ST gene expression interleukin interferon muscle myoblast chronic **heart** failure

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(14-3-3 protein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(14-3-3; differentially expressed genes in L6 rat skeletal muscle

myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Tropomyosins
RL: BSU (Biological study, unclassified); BIOL (Biological study) (4; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADF (actin-depolymg. factor); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (ADF-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (AP-2 (clathrin-coated vesicle assembly protein 2), AP2.alpha.-c; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (AP2.alpha.-c-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (BAF 170-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (BAF170 (BRG1-assocd. factor 170); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (CBP-50 (crotoxin-binding protein, 50,000-mol.-wt.); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (CBP-50; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (CTGF (connective tissue growth factor); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (CTGF; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (DNA primase p58 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (IGF2R; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (IP-10; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Cytokines
RL: BSU (Biological study, unclassified); BIOL (Biological study) (IP10 (IFN-.gamma.-inducible protein, 10,000-mol.-wt.); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (MRC OX-2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (MSSP-1 (c-myc gene single-strand binding protein-1); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (MSSP-1-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (N-myristoyltransferase-1-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (NDR1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (NDR1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)

(P38 MAPK-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(PABP (poly(A)-binding protein); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(RNF-4 (ring finger-4); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(RNF-4; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(TCP-1, TCP-1a; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(TCP-1a; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Annexins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(V; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(WDNM2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(annexin V-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(calponin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(collagen type III .alpha.1 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(collagen type IV .alpha.3 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Muscle
Myoblast
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Interleukin 1.beta.
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Calponin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Fibronectins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Insulin-like growth factor II receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT **Interleukin 10**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat **skeletal** muscle **myoblasts** after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Initiation factors (protein formation)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(eIF 5; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(eIF-5-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT **Heart**, disease
(failure, chronic; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(fibronectin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(gelatinase A-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Cytokines
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(inflammatory; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(**interleukin** 10-encoding; differentially expressed genes in L6 rat **skeletal** muscle **myoblasts** after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Glycoproteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(membrane, type I, MRC OX-2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(p19 phosphoprotein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Phosphoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p19; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(poly(A)-binding protein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(procollagen .alpha.2 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(procollagens, type I, .alpha.2 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(ribonucleotide reductase-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(stearoyl CoA desaturase 2-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(tropomyosin 4-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type III, .alpha.1 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type IV, .alpha.3 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Actins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(.beta.-; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.beta.-actin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.beta.2-microglobulin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Microglobulins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(.beta.2-; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Interferons
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(.gamma.; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 110071-61-9
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9014-34-0
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9047-64-7, Ribonucleotide reductase 146480-35-5, Gelatinase A
165245-96-5, P38 MAP kinase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9032-20-6, NAD(P)H:menadione oxidoreductase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gene WDNM2 for; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in

relation to chronic **heart** failure)
IT 64885-96-7, DNA primase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p58 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

L20 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:620095 CAPLUS
DOCUMENT NUMBER: 132:132974
TITLE: Genomic organization and embryonic expression of the mouse fibroblast growth factor 9 gene
AUTHOR(S): Colvin, Jennifer S.; Feldman, Benjamin; Nadeau, Joseph H.; Goldfarb, Mitchell; Ornitz, David M.
CORPORATE SOURCE: Department of Molecular Biology and Pharmacology, Washington University School of Medicine, St. Louis, MO, 63110, USA
SOURCE: Dev. Dyn. (1999), 216(1), 72-88
CODEN: DEDYEI; ISSN: 1058-8388
PUBLISHER: Wiley-Liss, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Fibroblast growth factor** 9 (**FGF9**), originally cloned as glial-activating factor from human glioma cells, is expressed in adult rat brain and kidney. Here the authors report the chromosomal localization, genomic organization, and embryonic expression pattern of the mouse **Fgf9** gene. **Fgf9** maps to chromosome 14 near the Ctla6 locus. The gene spans more than 34 kb and contains three exons and two introns. Translation initiation occurs in exon 1, and translation termination occurs in exon 3. **Fgf9** RNA was detected during mouse embryogenesis in several tissues in which **Fgf** gene expression has not been previously described, including intermediate mesoderm of late-stage gastrulation, ventricular myocardium, lung pleura, **skeletal myoblasts** in the early limb bud, spinal cord motor neurons, olfactory bulb, and gut lumenal epithelium. **Fgf9** is coexpressed with other **Fgf** genes in some **skeletal myoblasts**, in limb apical ectoderm, in craniofacial ectoderm, and in the retina, inner ear, and tooth bud.
REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB **Fibroblast growth factor** 9 (**FGF9**), originally cloned as glial-activating factor from human glioma cells, is expressed in adult rat brain and kidney. Here the authors report the chromosomal localization, genomic organization, and embryonic expression pattern of the mouse **Fgf9** gene. **Fgf9** maps to chromosome 14 near the Ctla6 locus. The gene spans more than 34 kb and contains three exons and two introns. Translation initiation occurs in exon 1, and translation termination occurs in exon 3. **Fgf9** RNA was detected during mouse embryogenesis in several tissues in which **Fgf** gene expression has not been previously described, including intermediate mesoderm of late-stage gastrulation, ventricular myocardium, lung pleura, **skeletal myoblasts** in the early limb bud, spinal cord motor neurons, olfactory bulb, and gut lumenal epithelium. **Fgf9** is coexpressed with other **Fgf** genes in some **skeletal myoblasts**, in limb apical ectoderm, in craniofacial ectoderm, and in the retina, inner ear, and tooth bud.
IT **Heart**
(ventricle, expression during embryogenesis; genomic organization and embryonic expression of mouse fibroblast growth factor 9 gene)

L20 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:599240 CAPLUS
DOCUMENT NUMBER: 127:185851
TITLE: Expression of a protein in myocardium by injection of a gene
INVENTOR(S): Leiden, Jeffrey M.; Barr, Eliay
PATENT ASSIGNEE(S): Regents of the University of Michigan, USA
SOURCE: U.S., 15 pp. Cont. of U. S. Ser. No. 789,983, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 5661133 | A | 19970826 | US 1995-376521 | 19950123 |
| US 5661133 | B1 | 19990601 | | |
| US 6316419 | B1 | 20011113 | US 1997-909496 | 19970812 |

PRIORITY APPLN. INFO.: US 1991-789983 B1 19911112
US 1995-376521 A1 19950123
AB A method is disclosed for expressing a protein which comprises transforming **skeletal myoblasts** or **cardiac** myocytes with a DNA sequence comprising a DNA segment encoding a selected gene downstream of the Rous sarcoma virus long terminal repeat or the expression sequence in pRSV, and implanting the **skeletal myoblasts** or **cardiac** myocytes into a recipient which then expresses a physiol. effective level of said protein. The method of the invention is useful for gene therapy. Rats were injected with a plasmid encoding human **fibroblast growth factor** 5 (hFGF-5) in an attempt to stimulate angiogenesis or collateral blood flow in the adult rat **heart**. Direct injection of the hFGF-5 expression vector stimulated collateral vessel formation in areas of the injected myocardium.
AB A method is disclosed for expressing a protein which comprises transforming **skeletal myoblasts** or **cardiac** myocytes with a DNA sequence comprising a DNA segment encoding a selected gene downstream of the Rous sarcoma virus long terminal repeat or the expression sequence in pRSV, and implanting the **skeletal myoblasts** or **cardiac** myocytes into a recipient which then expresses a physiol. effective level of said protein. The method of the invention is useful for gene therapy. Rats were injected with a plasmid encoding human **fibroblast growth factor** 5 (hFGF-5) in an attempt to stimulate angiogenesis or collateral blood flow in the adult rat **heart**. Direct injection of the hFGF-5 expression vector stimulated collateral vessel formation in areas of the injected myocardium.
ST protein expression myocardium gene therapy; skeletal myoblast gene therapy; **heart** myocyte gene therapy
IT Angiogenesis
(FGF-5 stimulation of angiogenesis in rat **heart**)
IT Gene therapy

**Heart**
Myocyte (**heart**)
(protein expression in myocardium by injection of gene)
IT Ventricle (**heart**)
(ventricular wall; protein expression in myocardium by injection of gene)
IT 129653-64-1, Fibroblast growth factor 5
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(FGF-5 stimulation of angiogenesis in rat **heart**)

L20 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:797460 CAPLUS
DOCUMENT NUMBER: 123:196046
TITLE: Myocardial grafts and cellular compositions useful for same
INVENTOR(S): Field, Loren J.
PATENT ASSIGNEE(S): Indiana University Foundation, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9514079 | A1 | 19950526 | WO 1994-US13141 | 19941116 |
| W: AU, CA, JP | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| US 5602301 | A | 19970211 | US 1993-153664 | 19931116 |
| AU 9510976 | A1 | 19950606 | AU 1995-10976 | 19941116 |
| AU 688427 | B2 | 19980312 | | |
| EP 729506 | A1 | 19960904 | EP 1995-901911 | 19941116 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| JP 09505471 | T2 | 19970603 | JP 1994-514553 | 19941116 |
| US 5733727 | A | 19980331 | US 1995-477783 | 19950607 |
| US 6015671 | A | 20000118 | US 1997-976278 | 19971121 |
| AU 9852141 | A1 | 19980319 | AU 1998-52141 | 19980119 |
| AU 697666 | B2 | 19981015 | | |
| US 2001038837 | A1 | 20011108 | US 2001-878011 | 20010608 |

PRIORITY APPLN. INFO.:
US 1993-153664 A 19931116
WO 1994-US13141 W 19941116
US 1995-477783 A1 19950607
US 1997-976278 A1 19971121
US 1999-441315 A1 19991116

AB Non-tumorigenic **skeletal myoblasts** or cardiomyocytes contg. recombinant mol. (proteins) or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts. In example, stable fetal cardiomyocytes, s.c. tumor-derived AT-1 cardiomyocytes and undifferentiated C2C12 myoblast cells were generated for stable grafts in syngeneic myocardium. Transgenic C2C12 myoblasts contg. TGF-.beta.1 cDNA were prepd. for grafts.
AB Non-tumorigenic **skeletal myoblasts** or cardiomyocytes contg. recombinant mol. (proteins) or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts. In example, stable fetal cardiomyocytes, s.c. tumor-derived AT-1 cardiomyocytes and undifferentiated C2C12 myoblast cells were generated for stable grafts in syngeneic myocardium. Transgenic C2C12 myoblasts contg. TGF-.beta.1 cDNA were prepd. for grafts.
IT **Heart**
Mammal
Myoblast
(non-tumorigenic skeletal myoblasts or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)
IT **Heart**
(transplant, non-tumorigenic skeletal myoblasts or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)
IT Animal growth regulators
RL: BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**.beta.1-transforming growth factors**, non-tumorigenic **skeletal myoblasts** or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)

L20 ANSWER 6 OF 12 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 96081977 MEDLINE
DOCUMENT NUMBER: 96081977 PubMed ID: 7499435
TITLE: Conservation of ligand specificity between the mammalian and amphibian fibroblast growth factor receptors.
AUTHOR: Patrie K M; Kudla A J; Olwin B B; Chiu I M
CORPORATE SOURCE: Molecular, Cellular, and Developmental Biology Program, Ohio State University, Davis Medical Research Center, Columbus 43210, USA.
CONTRACT NUMBER: R01AR39467 (NIAMS)
R01CA45611 (NCI)
R01DK47506 (NIDDK)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1995 Dec 1) 270 (48) 29018-24.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199601
ENTRY DATE: Entered STN: 19960217
Last Updated on STN: 19960217
Entered Medline: 19960118

AB We have previously cloned and sequenced a newt keratinocyte growth factor receptor (KGFR) cDNA which exhibited a unique spatial and temporal expression pattern in the regenerating newt limb. In this report, we further characterize the biochemical and functional properties of this newt KGFR. A stable Chinese hamster ovary transfectant overexpressing the

newt KGFR was capable of binding both 125I-**fibroblast growth factor**-1 (**FGF**-1) and 125I-**FGF**-7 but not 125I-**FGF**-2, indistinguishable from the human KGFR. Scatchard analysis and cross-linking studies further support the conclusion that **FGF**-1 and **FGF**-7 are the ligands for the newt KGFR. In addition to their ability to bind to **FGFs**, both the human and the newt KGFR are also capable of repressing differentiation in mouse MM14 myoblasts. MM14 cells express **FGFR1** and are repressed from differentiation by **FGF**-1, **FGF**-2, and **FGF**-4 but not **FGF**-7. Co-transfection of MM14 cells with either a human or newt KGFR expression construct conferred a response to **FGF**-7 as determined by a human alpha-**cardiac** actin/luciferase reporter construct. The response to **FGF**-7 was similar to the endogenous **FGF** response as **FGF**-7 prevented MM14 myoblasts from undergoing terminal differentiation. Thus, both the human and the newt KGFRs transduce signals similar to those transduced via the endogenous mouse **FGFR1**. Together these data indicate that this newly isolated newt KGFR is a functional receptor as it binds two **FGF** family members with high affinity and mediates signaling in **skeletal** muscle **myoblasts**. Because the binding pattern of the newt KGFR is similar to the pattern observed for its mammalian counterpart, it emphasizes the strict conservation that this ligand/receptor system has undergone through evolution.

AB . . . properties of this newt KGFR. A stable Chinese hamster ovary transfectant overexpressing the newt KGFR was capable of binding both 125I-**fibroblast growth factor**-1 (**FGF**-1) and 125I-**FGF**-7 but not 125I-**FGF**-2, indistinguishable from the human KGFR. Scatchard analysis and cross-linking studies further support the conclusion that **FGF**-1 and **FGF**-7 are the ligands for the newt KGFR. In addition to their ability to bind to **FGFs**, both the human and the newt KGFR are also capable of repressing differentiation in mouse MM14 myoblasts. MM14 cells express **FGFR1** and are repressed from differentiation by **FGF**-1, **FGF**-2, and **FGF**-4 but not **FGF**-7. Co-transfection of MM14 cells with either a human or newt KGFR expression construct conferred a response to **FGF**-7 as determined by a human alpha-**cardiac** actin/luciferase reporter construct. The response to **FGF**-7 was similar to the endogenous **FGF** response as **FGF**-7 prevented MM14 myoblasts from undergoing terminal differentiation. Thus, both the human and the newt KGFRs transduce signals similar to those transduced via the endogenous mouse **FGFR1**. Together these data indicate that this newly isolated newt KGFR is a functional receptor as it binds two **FGF** family members with high affinity and mediates signaling in **skeletal** muscle **myoblasts**. Because the binding pattern of the newt KGFR is similar to the pattern observed for its mammalian counterpart, it emphasizes. . .

L20 ANSWER 7 OF 12 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 95114096 MEDLINE
DOCUMENT NUMBER: 95114096 PubMed ID: 7529257
TITLE: Targeted expression of transforming growth factor-beta 1 in intracardiac grafts promotes vascular endothelial cell DNA synthesis.
AUTHOR: Koh G Y; Kim S J; Klug M G; Park K; Soonpaa M H; Field L J
CORPORATE SOURCE: Krannert Institute of Cardiology, Indiana University School of Medicine, Indianapolis 46202-4800.
CONTRACT NUMBER: HL-45453 (NHLBI)
SOURCE: JOURNAL OF CLINICAL INVESTIGATION, (1995 Jan) 95 (1) 114-21.
Journal code: HS7; 7802877. ISSN: 0021-9738.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199502
ENTRY DATE: Entered STN: 19950217
Last Updated on STN: 19980206
Entered Medline: 19950209

AB Intracardiac grafts comprised of genetically modified **skeletal myoblasts** were assessed for their ability to effect long-term delivery of recombinant **transforming growth factor-beta** (**TGF**-beta) to the **heart**. C2C12 myoblasts were stably transfected with a construct comprised of an inducible metallothionein promoter fused to a modified **TGF**-beta 1 cDNA. When cultured in medium supplemented with zinc sulfate, cells carrying this transgene constitutively secrete active **TGF**-beta 1. These genetically modified myoblasts were used to produce intracardiac grafts in syngeneic C3Heb/FeJ hosts. Viable grafts were observed as long as three months after implantation, and immunohistological analyses of mice maintained on water supplemented with zinc sulfate revealed the presence of grafted cells which stably expressed **TGF**-beta 1. Regions of apparent neovascularization, as evidenced by tritiated thymidine incorporation into vascular endothelial cells, were observed in the myocardium which bordered grafts expressing **TGF**-beta 1. The extent of vascular endothelial cell DNA synthesis could be modulated by altering dietary zinc. Similar effects on the vascular endothelial cells were not seen in mice with grafts comprised of nontransfected cells. This study indicates that genetically modified **skeletal myoblast** grafts can be used to effect the local, long-term delivery of recombinant molecules to the **heart**.

AB Intracardiac grafts comprised of genetically modified **skeletal myoblasts** were assessed for their ability to effect long-term delivery of recombinant **transforming growth factor-beta** (**TGF**-beta) to the **heart**. C2C12 myoblasts were stably transfected with a construct comprised of an inducible metallothionein promoter fused to a modified **TGF**-beta 1 cDNA. When cultured in medium supplemented with zinc sulfate, cells carrying this transgene constitutively secrete active **TGF**-beta 1. These genetically modified myoblasts were used to produce intracardiac grafts in syngeneic C3Heb/FeJ hosts. Viable grafts were observed as. . . immunohistological analyses of mice maintained on water supplemented with zinc sulfate revealed the presence of grafted cells which stably expressed **TGF**-beta 1. Regions of apparent neovascularization, as evidenced by tritiated thymidine incorporation into vascular endothelial cells, were observed in the myocardium which bordered grafts expressing **TGF**-beta 1. The extent of vascular endothelial cell DNA synthesis could be modulated by altering dietary zinc. Similar effects on the. . . vascular endothelial cells were not seen in mice with grafts comprised of nontransfected cells. This study indicates that genetically modified **skeletal myoblast** grafts can be used to effect the local, long-term delivery of recombinant molecules to the **heart**.

CT Check Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

**Cardiac Surgical Procedures**
Drug Delivery Systems
Drug Therapy: MT, methods
*Endothelium, Vascular: DE, drug effects
*Gene Therapy: MT, methods
***Heart: DE, drug effects**
Metallothionein: BI, biosynthesis
Metallothionein: GE, genetics
Mice
Mice, Inbred C3H
*Muscle, Skeletal: TR, transplantation
Neovascularization, Pathologic: CI,. . .

L20 ANSWER 8 OF 12 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 91260730 MEDLINE
DOCUMENT NUMBER: 91260730 PubMed ID: 1710772
TITLE: Secretion and transcriptional regulation of transforming growth factor-beta 3 during myogenesis.
AUTHOR: Lafyatis R; Lechleider R; Roberts A B; Sporn M B
CORPORATE SOURCE: Laboratory of Chemoprevention, National Cancer Institute, Bethesda, Maryland 20892.
SOURCE: MOLECULAR AND CELLULAR BIOLOGY, (1991 Jul) 11 (7) 3795-803. Journal code: NGY; 8109087. ISSN: 0270-7306.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199107
ENTRY DATE: Entered STN: 19910802
Last Updated on STN: 19980206
Entered Medline: 19910717

AB **Transforming growth factor-beta** 3 (**TGF**-beta 3) mRNA is differentially expressed in developing and mature mouse tissues, including high-level expression in developing and adult **cardiac** tissue. We show now that **TGF**-beta 3 mRNA is also expressed highly in skeletal muscle as well as in the mouse **skeletal myoblast** cell line C2C12. We also show that C2C12 cells secrete **TGF**-beta 3, and that this **TGF**-beta is able to inhibit C2C12 myoblast fusion after activation. In order to begin to understand how the **TGF**-beta 3 promoter is regulated in specific tissues during development, we therefore studied the regulation of **TGF**-beta 3 during myoblast fusion. After fusion of C2C12 cells into myotubes, **TGF**-beta 3 mRNA levels increased eightfold as a result of increased **TGF**-beta 3 transcription. **TGF** -beta 3 transcriptional regulation was studied in myoblasts and myotubes by transfection of chimeric **TGF**-beta 3/CAT promoter plasmids. Chloramphenicol acetyltransferase (CAT) activity was stimulated in myoblasts by several upstream regions between -301 and -47 of the **TGF**-beta 3 promoter and by the **TGF**-beta 3 5' untranslated region. CAT activity directed by the **TGF**-beta 3 promoter in myotubes was stimulated by a distinct upstream region located between -499 and -221. Therefore, the high level of **TGF**-beta 3 mRNA expression in muscle cells appears to be dependent on multiple regulatory events during different stages of myogenesis.

AB **Transforming growth factor-beta** 3 (**TGF**-beta 3) mRNA is differentially expressed in developing and mature mouse tissues, including high-level expression in developing and adult **cardiac** tissue. We show now that **TGF**-beta 3 mRNA is also expressed highly in skeletal muscle as well as in the mouse **skeletal myoblast** cell line C2C12. We also show that C2C12 cells secrete **TGF**-beta 3, and that this **TGF**-beta is able to inhibit C2C12 myoblast fusion after activation. In order to begin to understand how the **TGF**-beta 3 promoter is regulated in specific tissues during development, we therefore studied the regulation of **TGF**-beta 3 during myoblast fusion. After fusion of C2C12 cells into myotubes, **TGF**-beta 3 mRNA levels increased eightfold as a result of increased **TGF**-beta 3 transcription. **TGF** -beta 3 transcriptional regulation was studied in myoblasts and myotubes by transfection of chimeric **TGF**-beta 3/CAT promoter plasmids. Chloramphenicol acetyltransferase (CAT) activity was stimulated in myoblasts by several upstream regions between -301 and -47 of the **TGF**-beta 3 promoter and by the **TGF**-beta 3 5' untranslated region. CAT activity directed by the **TGF**-beta 3 promoter in myotubes was stimulated by a distinct upstream region located between -499 and -221. Therefore, the high level of **TGF**-beta 3 mRNA expression in muscle cells appears to be dependent on multiple regulatory events during different stages of myogenesis.

L20 ANSWER 9 OF 12 MEDLINE
ACCESSION NUMBER: 91300935 MEDLINE
DOCUMENT NUMBER: 91300935 PubMed ID: 1712696
TITLE: TGF-beta 1 and fibroblast growth factors selectively up-regulate tissue-specific fetal genes in **cardiac** muscle cells.
AUTHOR: Parker T G; Chow K L; Schwartz R J; Schneider M D
CORPORATE SOURCE: Department of Medicine, Baylor College of Medicine, Houston, TX 77030-3498.
CONTRACT NUMBER: R01-HL39141 (NHLBI)
SOURCE: CIBA FOUNDATION SYMPOSIUM, (1991) 157 152-60; discussion 161-4. Journal code: D7X; 0356636. ISSN: 0300-5208.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199108
ENTRY DATE: Entered STN: 19910908
Last Updated on STN: 19960129
Entered Medline: 19910820

AB **TGF**-beta 1, like basic and acidic **fibroblast growth factor** (**FGF**), inhibits differentiated gene expression in **skeletal myoblasts**. It potentiates **FGF**-beta 1 down-regulated expression of the alpha-myosin heavy chain gene and the sarcoplasmic reticulum calcium ATPase gene, yet up-regulated expression of the genes for beta-myosin heavy chain, atrial natriuretic factor, and both skeletal and smooth muscle alpha-actin-four transcripts associated with the embryonic **heart**. **TGF** -beta 1 did not affect **cardiac** alpha-actin gene expression. These responses resemble the generalized 'fetal' phenotype seen during hypertrophy triggered by a haemodynamic load. Chick skeletal and **cardiac** alpha-actin promoter-driven reported genes were transfected into neonatal rat **cardiac** myocytes. **TGF** -beta 1 stimulated skeletal alpha-actin transcription, but not

transcription from the **cardiac** alpha-actin promoter. Basic **FGF** produced the same results as **TGF**-beta 1, but acidic **FGF** suppressed expression of both alpha-actin genes; these results were true for purified and recombinant **FGFs**. Modulation of alpha-actin transcription by growth factors corresponded accurately to control of the endogenous genes. Three positive cis-acting elements were critical for skeletal alpha-actin transcription in **cardiac**, as well as skeletal, myocytes, particularly the downstream CCAAT box-associated repeat. Thus, **TGF**-beta 1 and **FGFs** selectively induce an ensemble of 'fetal' genes and differentially regulate alpha-actin transcription in **cardiac** muscle cells.

TI TGF-beta 1 and fibroblast growth factors selectively up-regulate tissue-specific fetal genes in **cardiac** muscle cells.

AB **TGF**-beta 1, like basic and acidic **fibroblast growth factor** (**FGF**), inhibits differentiated gene expression in **skeletal myoblasts**. It potentiates **FGF**-beta 1 down-regulated expression of the alpha-myosin heavy chain gene and the sarcoplasmic reticulum calcium ATPase gene, yet up-regulated expression of. . . genes for beta-myosin heavy chain, atrial natriuretic factor, and both skeletal and smooth muscle alpha-actin-four transcripts associated with the embryonic **heart** . **TGF**-beta 1 did not affect **cardiac** alpha-actin gene expression. These responses resemble the generalized 'fetal' phenotype seen during hypertrophy triggered by a haemodynamic load. Chick skeletal and **cardiac** alpha-actin promoter-driven reported genes were transfected into neonatal rat **cardiac** myocytes. **TGF** -beta 1 stimulated skeletal alpha-actin transcription, but not transcription from the **cardiac** alpha-actin promoter. Basic **FGF** produced the same results as **TGF**-beta 1, but acidic **FGF** suppressed expression of both alpha-actin genes; these results were true for purified and recombinant **FGFs**. Modulation of alpha-actin transcription by growth factors corresponded accurately to control of the endogenous genes. Three positive cis-acting elements were critical for skeletal alpha-actin transcription in **cardiac**, as well as skeletal, myocytes, particularly the downstream CCAAT box-associated repeat. Thus, **TGF**-beta 1 and **FGFs** selectively induce an ensemble of 'fetal' genes and differentially regulate alpha-actin transcription in **cardiac** muscle cells.

CT . . . Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Actins: BI, biosynthesis
Actins: GE, genetics
Cell Division: DE, drug effects
**Fetal Heart: ME, metabolism**
*Fibroblast Growth Factor, Acidic: PD, pharmacology
*Fibroblast Growth Factor, Basic: PD, pharmacology
*Gene Expression Regulation: DE,. . .

L20 ANSWER 10 OF 12 MEDLINE DUPLICATE 5

| | |
|---|---|
| ACCESSION NUMBER: | 90097919 MEDLINE |
| DOCUMENT NUMBER: | 90097919 PubMed ID: 2601707 |
| TITLE: | A new myocyte-specific enhancer-binding factor that recognizes a conserved element associated with multiple muscle-specific genes. |
| AUTHOR: | Gossett L A; Kelvin D J; Sternberg E A; Olson E N |
| CORPORATE SOURCE: | Department of Biochemistry and Molecular Biology, University of Texas, M.D. Anderson Cancer Center, Houston 77030. |
| CONTRACT NUMBER: | AR 39849 (NIAMS)<br>CA-16672 (NCI) |
| SOURCE: | MOLECULAR AND CELLULAR BIOLOGY, (1989 Nov) 9 (11) 5022-33.<br>Journal code: NGY; 8109087. ISSN: 0270-7306. |
| PUB. COUNTRY: | United States<br>Journal; Article; (JOURNAL ARTICLE) |
| LANGUAGE: | English |
| FILE SEGMENT: | Priority Journals |
| ENTRY MONTH: | 199002 |
| ENTRY DATE: | Entered STN: 19900328<br>Last Updated on STN: 19970203<br>Entered Medline: 19900202 |

AB Exposure of **skeletal myoblasts** to growth factor-deficient medium results in transcriptional activation of muscle-specific genes, including the muscle creatine kinase gene (mck). Tissue specificity, developmental regulation, and high-level expression of mck are conferred primarily by a muscle-specific enhancer located between base pairs (bp) -1350 and -1048 relative to the transcription initiation site (E. A. Sternberg, G. Spizz, W. M. Perry, D. Vizard, T. Weil, and E. N. Olson, Mol. Cell. Biol. 8:2896-2909, 1988). To begin to define the regulatory mechanisms that mediate the selective activation of the mck enhancer in differentiating muscle cells, we have further delimited the boundaries of this enhancer and analyzed its interactions with nuclear factors from a variety of myogenic and nonmyogenic cell types. Deletion mutagenesis showed that the region between 1,204 and 1,095 bp upstream of mck functions as a weak muscle-specific enhancer that is dependent on an adjacent enhancer element for strong activity. This adjacent activating element does not exhibit enhancer activity in single copy but acts as a strong enhancer when multimerized. Gel retardation assays combined with DNase I footprinting and diethyl pyrocarbonate interference showed that a nuclear factor from differentiated C2 myotubes and BC3H1 myocytes recognized a conserved A + T-rich sequence within the peripheral activating region. This myocyte-specific enhancer-binding factor, designated MEP-2, was undetectable in nuclear extracts from C2 or BC3H1 myoblasts or several nonmyogenic cell lines. MEF-2 was first detectable within 2 h after exposure of myoblasts to mitogen-deficient medium and increased in abundance for 24 to 48 h thereafter. The appearance of MEF-2 required ongoing protein synthesis and was prevented by **fibroblast growth factor** and type **beta transforming growth factor**, which block the induction of muscle-specific genes. A myoblast-specific factor that is down regulated within 4 h after removal of growth factors was also found to bind to the MEF-2 recognition site. A 10-bp sequence, which was shown by DNase I footprinting and diethyl pyrocarbonate interference to interact directly with MEF-2, was identified within the rat and human mck enhancers, the rat myosin light-chain (mlc)-1/3 enhancer, and the chicken **cardiac** mlc-2A promoter. Oligomers corresponding to the region of the mlc-1/3 enhancer, which encompasses this conserved sequence, bound MEF-2 and competed for its binding to the mck enhancer.(ABSTRACT TRUNCATED AT 400 WORDS)

AB Exposure of **skeletal myoblasts** to growth factor-deficient medium results in transcriptional activation of muscle-specific genes, including the muscle creatine kinase gene (mck). Tissue specificity,. . . in abundance for 24 to 48 h thereafter. The appearance of MEF-2 required ongoing protein synthesis and was prevented

by **fibroblast growth factor** and type
**beta transforming growth factor**,
which block the induction of muscle-specific genes. A myoblast-specific factor that is down regulated within 4 h after removal of. . . with MEF-2, was identified within the rat and human mck enhancers, the rat myosin light-chain (mlc)-1/3 enhancer, and the chicken **cardiac** mlc-2A promoter. Oligomers corresponding to the region of the mlc-1/3 enhancer, which encompasses this conserved sequence, bound MEF-2 and competed. . .

L20 ANSWER 11 OF 12 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 90009059 MEDLINE
DOCUMENT NUMBER: 90009059 PubMed ID: 2677031
TITLE: Basic fibroblast growth factor in atria and ventricles of the vertebrate **heart**.
AUTHOR: Kardami E; Fandrich R R
CORPORATE SOURCE: St. Boniface General Hospital Research Centre, Division of Cardiovascular Sciences, Winnipeg, Manitoba, Canada.
SOURCE: JOURNAL OF CELL BIOLOGY, (1989 Oct) 109 (4 Pt 1) 1865-75.
Journal code: HMV; 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198911
ENTRY DATE: Entered STN: 19900328
Last Updated on STN: 19900328
Entered Medline: 19891102

AB Extracts from atrial and ventricular **heart** tissue of several species (chicken, rat, sheep, and cow) are strongly mitogenic for chicken **skeletal myoblasts**, with the highest apparent concentration of biological activity in the atrial extracts. Using several approaches (biological activity assay and biochemical and immunological analyses), we have established that (a) all **cardiac** extracts contain an 18,000-D peptide which is identified as basic **fibroblast growth factor** (bFGF) since it elutes from heparin-Sepharose columns at salt concentrations greater than 1.4 M and is recognized by bFGF-specific affinity-purified antibodies; (b) bFGF is more abundant in the atrial extracts in all species so examined; (c) avian **cardiac** tissue extracts contain the highest concentration of immunoreactive bFGF; and (d) avian ventricles contain a higher relative molecular mass (23,000-D) bFGF-like peptide which is absent from atrial extracts. Examination of frozen bovine **cardiac** tissue sections by indirect immunofluorescence using anti-bFGF antibodies shows bFGF-like reactivity associated with nuclei and intercalated discs of muscle fibers. There is substantial accumulation of bFGF around atrial but not ventricular myofibers, resulting most likely from more extensive endomysium in the atria. Blood vessels and single, nonmuscle, connective tissue cells react strongly with the anti-bFGF antibodies. Higher bFGF content and pericellular distribution in atrial muscles suggest a correlation with increased regenerative potential in this tissue. Distribution within the myofibers is intriguing, raising the possibility for an intimate and continuous involvement of bFGF-like components with normal myocardial function.
TI Basic fibroblast growth factor in atria and ventricles of the vertebrate **heart**.
AB Extracts from atrial and ventricular **heart** tissue of several species (chicken, rat, sheep, and cow) are strongly mitogenic for chicken **skeletal myoblasts**, with the highest apparent concentration of biological activity in the atrial extracts. Using several approaches (biological activity assay and biochemical and immunological analyses), we have established that (a) all **cardiac** extracts contain an 18,000-D peptide which is identified as basic **fibroblast growth factor** (bFGF) since it elutes from heparin-Sepharose columns at salt concentrations greater than 1.4 M and is recognized by bFGF-specific affinity-purified antibodies; (b) bFGF is more abundant in the atrial extracts in all species so examined; (c) avian **cardiac** tissue extracts contain the highest concentration of immunoreactive bFGF; and (d) avian ventricles contain a higher relative molecular mass (23,000-D) bFGF-like peptide which is absent from atrial extracts. Examination of frozen bovine **cardiac** tissue sections by indirect immunofluorescence using anti-bFGF antibodies shows bFGF-like reactivity associated with nuclei and intercalated discs of muscle fibers.. . .
CT . . .
Chromatography, Affinity
DNA Replication: DE, drug effects
*Fibroblast Growth Factor: AN, analysis
Fibroblast Growth Factor: PD, pharmacology
Fluorescent Antibody Technique
**Heart: PH, physiology**
**Heart Atrium: AN, analysis**
**Heart Atrium: CY, cytology**
**Heart Ventricle: AN, analysis**
**Heart Ventricle: CY, cytology**
Muscles: CY, cytology
Muscles: DE, drug effects
Myocardium: AN, analysis
Myocardium: CY, cytology
Organ Specificity
Rats
. . .

L20 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1989:206511 CAPLUS
DOCUMENT NUMBER: 110:206511
TITLE: Heparin-binding mitogen(s) in the **heart**; in search of origin and function
AUTHOR(S): Kardami, Elissavet; Fandrich, Robert R.
CORPORATE SOURCE: Res. Cent., St. Boniface Gen. Hosp., Winnipeg, MB, R2H 2A6, Can.
SOURCE: UCLA Symp. Mol. Cell. Biol., New Ser. (1989), 93(Cell. Mol. Biol. Muscle Dev.), 315-25
CODEN: USMBD6; ISSN: 0735-9543
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Exts. from rat **heart** tissue are highly mitogenic for a variety of cell types, including rabbit fetal chondrocytes and **skeletal myoblasts**. Ext. activity is a consequence of the presence of heparin-binding factor(s) in the **heart**. One of these factors was identified as basic **fibroblast growth factor** (bFGF), using bFGF specific antibodies. Biol. activity assays of the exts. indicate that heparin-binding factor(s) have an

apparent concn. which is highest in the atria and lowest in the left ventricle. The source of these factors in the **heart** is unknown; data from cell-conditioned media suggest that the myocytes may be secreting these factors in the **cardiac** milieu, particularly in the atria. These findings suggest a correlation between the less differentiated state and better regenerative ability of the atrial myocytes with local heparin-binding growth factor presence. In agreement with this hypothesis, bFGF can stimulate atrial or ventricular myocyte proliferation in vitro; furthermore the effect of bFGF is cancelled by simultaneous presence of **transforming growth factor-.beta.**, another factor which is found in many normal tissues, including the **heart**. Local growth factors therefore may be responsible for the regenerative properties of **cardiac** muscle.

TI Heparin-binding mitogen(s) in the **heart**; in search of origin and function

AB Exts. from rat **heart** tissue are highly mitogenic for a variety of cell types, including rabbit fetal chondrocytes and **skeletal myoblasts**. Ext. activity is a consequence of the presence of heparin-binding factor(s) in the **heart**. One of these factors was identified as basic **fibroblast growth factor** (bFGF), using bFGF specific antibodies. Biol. activity assays of the exts. indicate that heparin-binding factor(s) have an apparent concn. which is highest in the atria and lowest in the left ventricle. The source of these factors in the **heart** is unknown; data from cell-conditioned media suggest that the myocytes may be secreting these factors in the **cardiac** milieu, particularly in the atria. These findings suggest a correlation between the less differentiated state and better regenerative ability of the atrial myocytes with local heparin-binding growth factor presence. In agreement with this hypothesis, bFGF can stimulate atrial or ventricular myocyte proliferation in vitro; furthermore the effect of bFGF is cancelled by simultaneous presence of **transforming growth factor-.beta.**, another factor which is found in many normal tissues, including the **heart**. Local growth factors therefore may be responsible for the regenerative properties of **cardiac** muscle.

ST heparin binding growth factor **heart**

IT Cell division
Deoxyribonucleic acid formation
(by **heart** myocyte, heparin-binding growth factors effect on)

IT **Heart**
(regeneration of, heparin-binding growth factors in)

IT **Heart**, composition
(atrium, heparin-binding growth factors of, function and origin of)

IT Animal growth regulators
RL: BIOL (Biological study)
(heparin-binding growth factors, of **heart**, function and origin of)

IT **Heart**, composition
(ventricle, heparin-binding growth factors of, function and origin of)

IT Animal growth regulators
RL: BIOL (Biological study)
(.beta.-transforming growth factors, **heart** ventricle myocyte proliferation response to basic fibroblast growth factor inhibition by)

IT 106096-93-9, Basic fibroblast growth factor
RL: BIOL (Biological study)
(heparin-binding growth factors of **heart** in relation to)

```
=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1          225 S EDGE A?/AU
L2            7 S L1 AND MYOBLAST
L3            5 DUP REM L2 (2 DUPLICATES REMOVED)
L4         1946 S SKELET? (3N) MYOBLAST?
L5          123 S L4 (10N) FIBROBLAST?
L6           56 DUP REM L5 (67 DUPLICATES REMOVED)
L7            5 S L6 AND TRANSPLANT?
L8            5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9            0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10           3 S L6 AND LAMININ
L11           1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12           4 S L6 AND COLLAGEN
L13        1946 S L4 OR L11 OR L10
L14           6 S L12 OR L11 OR L10
L15           6 DUP REM L14 (0 DUPLICATES REMOVED)
L16          34 S L6 AND CULTUR?
L17           1 S L16 AND (IN (1N)VITRO)
L18         196 S L4 (P)  ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (
L19          27 S L18 AND (CARDIAC OR HEART)
L20          12 DUP REM L19 (15 DUPLICATES REMOVED)

=> s l4 (P) ((GATA4 or GATA6 or GATA?)
UNMATCHED LEFT PARENTHESIS 'P) ((GATA4'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s l4 (P) ((GATA4 or GATA6 or GATA?))
L21           4 L4 (P) ((GATA4 OR GATA6 OR GATA?))

=> dup rem l21
PROCESSING COMPLETED FOR L21
L22           1 DUP REM L21 (3 DUPLICATES REMOVED)

=> dis l22 ibib abs kwic

L22  ANSWER 1 OF 1     MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:   96394366     MEDLINE
DOCUMENT NUMBER:    96394366   PubMed ID: 8798472
TITLE:              Identification and characterization of the cell
                    type-specific and developmentally regulated alpha7 integrin
                    gene promoter.
AUTHOR:             Ziober B L; Kramer R H
CORPORATE SOURCE:   Department of Stomatology, University of California, San
                    Francisco, California 94143-0512, USA.
CONTRACT NUMBER:    CA51884 (NCI)
                    DE10306 (NIDCR)
                    DE10564 (NIDCR)
                    +
```

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Sep 13) 271 (37) 22915-22.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U60419
ENTRY MONTH: 199611
ENTRY DATE: Entered STN: 19961219
Last Updated on STN: 20000303
Entered Medline: 19961107

AB Expression of alpha7 is mainly confined to skeletal and cardiac muscle in which it appears to be the major laminin-binding integrin. When myoblasts differentiate to myotubes, alpha7 mRNA and protein expression is up-regulated. To explore the mechanisms involved in the tissue-specific and developmentally regulated expression of alpha7, we isolated and characterized a genomic clone containing approximately 2.8 kilobase pairs (kb) of the 5'-flanking region of the murine alpha7 gene. The 5'-flanking region lacks both TATA and CCAAT boxes but contains five putative Sp1 binding sites located in a CpG island. Two transcription start sites, located near an initiator-like sequence, are 176 and 170 base pairs upstream of the translation start site. There are numerous binding sites for developmental and cell type-specific transcription factors, including AP-1, AP-2, **GATA**, and several AT-rich sites. There are also eight consensus E-boxes that bind the basic helix-loop-helix family of muscle-specific transcription factors. The approximately 2.8-kb 5'-flanking region was an active promoter in C2C12 **skeletal myoblasts** and exhibited increased expression upon conversion to myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma epithelial cell line that does not express alpha7. Deletion analysis identified both positive and negative regulatory elements within the approximately 2.8-kb fragment. In 10T1/2 fibroblasts the approximately 2.8-kb alpha7 promoter was trans-activated by the myogenic basic helix-loop-helix proteins myogenin and MyoD but not by MRF4 and myf5. These results suggest that muscle-specific transcription factors play a role in regulating the cell-type expression of the alpha7 gene during development.

AB . . . of the translation start site. There are numerous binding sites for developmental and cell type-specific transcription factors, including AP-1, AP-2, **GATA**, and several AT-rich sites. There are also eight consensus E-boxes that bind the basic helix-loop-helix family of muscle-specific transcription factors. The approximately 2.8-kb 5'-flanking region was an active promoter in C2C12 **skeletal myoblasts** and exhibited increased expression upon conversion to myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma epithelial cell. . .

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU
L2 7 S L1 AND MYOBLAST
L3 5 DUP REM L2 (2 DUPLICATES REMOVED)
L4 1946 S SKELET? (3N) MYOBLAST?
L5 123 S L4 (10N) FIBROBLAST?
L6 56 DUP REM L5 (67 DUPLICATES REMOVED)
L7 5 S L6 AND TRANSPLANT?
L8 5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9 0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10 3 S L6 AND LAMININ
L11 1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12 4 S L6 AND COLLAGEN
L13 1946 S L4 OR L11 OR L10
L14 6 S L12 OR L11 OR L10
L15 6 DUP REM L14 (0 DUPLICATES REMOVED)
L16 34 S L6 AND CULTUR?
L17 1 S L16 AND (IN (1N)VITRO)
L18 196 S L4 (P) ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (
L19 27 S L18 AND (CARDIAC OR HEART)
L20 12 DUP REM L19 (15 DUPLICATES REMOVED)
L21 4 S L4 (P) ((GATA4 OR GATA6 OR GATA?))
L22 1 DUP REM L21 (3 DUPLICATES REMOVED)

=> end
ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y

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| CA SUBSCRIBER PRICE | -6.20 | -6.20 |

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PASSWORD:
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 NEWS  1          Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2  Sep 17  IMSworld Pharmaceutical Company Directory name change
                  to PHARMASEARCH
 NEWS  3  Oct 09  Korean abstracts now included in Derwent World Patents
                  Index
 NEWS  4  Oct 09  Number of Derwent World Patents Index updates increased
 NEWS  5  Oct 15  Calculated properties now in the REGISTRY/ZREGISTRY File
 NEWS  6  Oct 22  Over 1 million reactions added to CASREACT
 NEWS  7  Oct 22  DGENE GETSIM has been improved
 NEWS  8  Oct 29  AAASD no longer available
 NEWS  9  Nov 19  New Search Capabilities  USPATFULL and USPAT2
 NEWS 10  Nov 19  TOXCENTER(SM) - new toxicology file now available on STN
 NEWS 11  Nov 29  COPPERLIT now available on STN
 NEWS 12  Nov 29  DWPI revisions to NTIS and US Provisional Numbers
 NEWS 13  Nov 30  Files VETU and VETB to have open access
 NEWS 14  Dec 10  WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
 NEWS 15  Dec 10  DGENE BLAST Homology Search
 NEWS 16  Dec 17  WELDASEARCH now available on STN
 NEWS 17  Dec 17  STANDARDS now available on STN
 NEWS 18  Dec 17  New fields for DPCI
 NEWS 19  Dec 19  CAS Roles modified
 NEWS 20  Dec 19  1907-1946 data and page images added to CA and CAplus
 NEWS 21  Jan 25  BLAST(R) searching in REGISTRY available in STN on the Web
 NEWS 22  Jan 25  Searching with the P indicator for Preparations
 NEWS 23  Jan 29  FSTA has been reloaded and moves to weekly updates
 NEWS 24  Feb 01  DKILIT now produced by FIZ Karlsruhe and has a new update
                  frequency
 NEWS 25  Feb 19  Access via Tymnet and SprintNet Eliminated Effective 3/31/02

 NEWS EXPRESS  February 1 CURRENT WINDOWS VERSION IS V6.0d,
               CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
               AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
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 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
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FULL ESTIMATED COST                                     0.15       0.15

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FILE 'BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
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=> s Edge A?/au
L1          225 EDGE A?/AU

=> s l1 and myoblast
L2            7 L1 AND MYOBLAST

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3            5 DUP REM L2 (2 DUPLICATES REMOVED)

=> dis l3 1-5 ibib abs kwic

L3   ANSWER 1 OF 5  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         2001:73649  CAPLUS
TITLE:                    Muscle cells and their use in cardiac repair
INVENTOR(S):              Edge, Albert
PATENT ASSIGNEE(S):       Diacrin, Inc., USA
SOURCE:                   PCT Int. Appl.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

      PATENT NO.        KIND  DATE          APPLICATION NO.  DATE
      ----------------  ----  --------      ---------------  --------
      WO 2001007568     A2    20010201      WO 2000-US20129  20000724
      WO 2001007568     A3    20010809
```

W: AU, CA, JP
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
PRIORITY APPLN. INFO.: US 1999-145849 P 19990723
AB Muscle cells and methods for using the muscle cells are provided. In one embodiment, the invention provides transplantable skeletal muscle cell compositions and their methods of use. In one embodiment, the muscle cells can be transplanted into patients having disorders characterized by insufficient cardiac function, e.g., congestive heart failure, in a subject by administering the skeletal **myoblasts** to the subject. The muscle cells can be autologous, allogeneic, or xenogeneic to the recipient.
IN **Edge, Albert**
AB Muscle cells and methods for using the muscle cells are provided. In one embodiment, the invention provides transplantable skeletal muscle cell compositions and their methods of use. In one embodiment, the muscle cells can be transplanted into patients having disorders characterized by insufficient cardiac function, e.g., congestive heart failure, in a subject by administering the skeletal **myoblasts** to the subject. The muscle cells can be autologous, allogeneic, or xenogeneic to the recipient.

L3 ANSWER 2 OF 5 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001265854 MEDLINE
DOCUMENT NUMBER: 21193152 PubMed ID: 11294813
TITLE: Cell therapy attenuates deleterious ventricular remodeling and improves cardiac performance after myocardial infarction.
AUTHOR: Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7. Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531
AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal **myoblasts** would (1) result in viable **myoblast** implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) **myoblasts** were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo cardiac function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of **myoblast** graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal **myoblasts** form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic **myoblast** implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.
AU Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
AB . . . deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal **myoblasts** would (1) result in viable **myoblast** implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) **myoblasts** were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell. . . the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of **myoblast** graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not. . . therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal **myoblasts** form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic **myoblast** implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests. . .

L3 ANSWER 3 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:112448 BIOSIS
DOCUMENT NUMBER: PREV200100112448
TITLE: Skeletal **myoblast** implantation attenuates post-MI ventricular remodeling and improves cardiac performance.
AUTHOR(S): Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
CORPORATE SOURCE: (1) Boston Univ Sch of Medicine, Boston, MA USA
SOURCE: Circulation, (October 31, 2000) Vol. 102, No. 18 Supplement, pp. II.357. print.
Meeting Info.: Abstracts from Scientific Sessions 2000 New Orleans, Louisiana, USA November 12-15, 2000
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English
TI Skeletal **myoblast** implantation attenuates post-MI ventricular

remodeling and improves cardiac performance.
AU Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
IT . . .
system; heart: circulatory system; left cardiac ventricle: circulatory system; myocardium: circulatory system, muscular system; skeletal leg muscle: muscular system; skeletal **myoblast**: muscular system
IT Diseases
MI [myocardial infarction]: heart disease, vascular disease
IT Methods & Equipment
cell therapy: therapeutic method; pressure-volume curve: evaluation method; skeletal **myoblast** implantation: surgical method, tissue transplantation method
IT Miscellaneous Descriptors
cardiac performance; exercise capacity; post-MI ventricular remodeling [post-myocardial infarction ventricular remodeling];. . .

L3 ANSWER 4 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1998:18313 BIOSIS
DOCUMENT NUMBER: PREV199800018313
TITLE: Cellular therapy for myocardial repair: Successful transplantation of human **myoblasts** by intracoronary injection into the canine heart after acute myocardial infarction.
AUTHOR(S): Gold, Herman K. (1); Garabedian, Harry D. (1); Guerrero, Jose Luis (1); Sullivan, Suzanne (1); Zawadzka, Agatha; Dinsmore, Jonathan; **Edge, Albert S. B.**; Dersimonian, Harout
CORPORATE SOURCE: (1) Massachusetts General Hosp., Boston, MA USA
SOURCE: Circulation, (10/21/97, 1997) Vol. 96, No. 8 SUPPL., pp. I567.
Meeting Info.: 70th Scientific Sessions of the American Heart Association Orlando, Florida, USA November 9-12, 1997
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
TI Cellular therapy for myocardial repair: Successful transplantation of human **myoblasts** by intracoronary injection into the canine heart after acute myocardial infarction.
AU Gold, Herman K. (1); Garabedian, Harry D. (1); Guerrero, Jose Luis (1); Sullivan, Suzanne (1); Zawadzka, Agatha; Dinsmore, Jonathan; **Edge, Albert S. B.**; Dersimonian, Harout
IT Major Concepts
Cardiovascular System (Transport and Circulation)
IT Parts, Structures, & Systems of Organisms
**myoblasts**: muscular system
IT Diseases
acute myocardial infarction: heart disease, vascular disease
IT Chemicals & Biochemicals
cyclosporine: immunosuppressant - drug; prednisone:. . .

L3 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:77175 CAPLUS
DOCUMENT NUMBER: 126:88284
TITLE: Modified cells and methods for inhibiting xenograft rejection
INVENTOR(S): Donnelly, Caroline; **Edge, Albert**; Yatko, Christopher
PATENT ASSIGNEE(S): Diacrin, Incorporated, USA
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9638543 | A1 | 19961205 | WO 1996-US5519 | 19960419 |
| W: AU, CA, JP | | | | |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| CA 2217131 | AA | 19961205 | CA 1996-2217131 | 19960419 |
| AU 9657136 | A1 | 19961218 | AU 1996-57136 | 19960419 |
| EP 822977 | A1 | 19980211 | EP 1996-915336 | 19960419 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1995-427083 19950420
WO 1996-US5519 19960419
AB Improved methods for inhibiting rejection of transplanted cells in allogeneic or xenogeneic recipient subject are described. The methods involve altering at least one antigen on the surface of a donor cell prior to transplantation to reduce the immunogenicity of the cell in a recipient subject. Preferably, an MHC class I antigen on a donor cell is altered by contacting the cell with a mol. which binds to the antigen, such as an antibody or fragment or deriv. thereof. The altered cell can then be transplanted into a recipient subject such that immune cell-mediated, e.g., T cell-mediated, NK cell-mediated, and/or lymphokine activated killer (LAK) cell-mediated, rejection is inhibited.
IN Donnelly, Caroline; **Edge, Albert**; Yatko, Christopher
IT Animal cells
Animal tissue
Hematopoietic precursor cell
Hepatocyte
Islet of Langerhans
Lymphocyte
Muscle fiber
**Myoblast**
Myocyte (heart)
Natural killer cell
Neurons
Organ (animal)
Transplant (organ)
Transplant rejection
(modified cells and methods for inhibiting xenograft rejection)
IT Heart
(**myoblast**; modified cells and methods for inhibiting xenograft rejection)

=>

```
=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1           225 S EDGE A?/AU
L2             7 S L1 AND MYOBLAST
L3             5 DUP REM L2 (2 DUPLICATES REMOVED)

=> skelet? (3N) myoblast?
SKELET? IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s skelet? (3N) myoblast?
L4          1946 SKELET? (3N) MYOBLAST?

=> s l4 (10N) fibroblast?
L5           123 L4 (10N) FIBROBLAST?

=> dup rem l5
PROCESSING COMPLETED FOR L5
L6            56 DUP REM L5 (67 DUPLICATES REMOVED)

=> s l6 and transplant?
L7             5 L6 AND TRANSPLANT?

=> s l6 and (transplant? or graft?)
L8             5 L6 AND (TRANSPLANT? OR GRAFT?)

=> dis l8 1-5 ibib abs kwic

L8   ANSWER 1 OF 5     MEDLINE
ACCESSION NUMBER:    2001064096     MEDLINE
DOCUMENT NUMBER:     20426151   PubMed ID: 10972335
TITLE:               Comparison of benefits on myocardial performance of
                     cellular cardiomyoplasty with skeletal
                     myoblasts and fibroblasts.
AUTHOR:              Hutcheson K A; Atkins B Z; Hueman M T; Hopkins M B; Glower
                     D D; Taylor D A
CORPORATE SOURCE:    Department of Medicine, Duke University Medical Center,
                     Durham, NC 27710, USA.
CONTRACT NUMBER:     1R01 HL63346-01 (NHLBI)
                     2R01 HL5798-02 (NHLBI)
SOURCE:              CELL TRANSPLANTATION, (2000 May-Jun) 9 (3) 359-68.
                     Journal code: B02. ISSN: 0963-6897.
PUB. COUNTRY:        United States
                     Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Priority Journals
ENTRY MONTH:         200012
ENTRY DATE:          Entered STN: 20010322
                     Last Updated on STN: 20010322
                     Entered Medline: 20001222
AB   Cellular cardiomyoplasty (CCM), or introduction of immature cells into
     terminally injured heart, can mediate repair of chronically injured
     myocardium. Several different cell types, ranging from embryonic stem
     cells to autologous skeletal myoblasts, have been successfully propagated
     within damaged heart and shown to improve myocardial performance. However,
     it is unclear if the functional advantages associated with CCM depend upon
     the use of myogenic cells or if similar results can be seen with other
     cell types. Thus, we compared indices of regional contractile (systolic)
     and diastolic myocardial performance following transplantation
     of either autologous skeletal myoblasts (Mb) or dermal
     fibroblasts (Fb) into chronically injured rabbit heart. In vivo
     left ventricular (LV) pressure (P) and regional segment length (SL) were
     determined in 15 rabbits by micromanometry and sonomicrometry 1 week
     following LV cryoinjury (CRYO) and again 3 weeks after autologous skeletal
     Mb or dermal Fb transplantation. Quantification of systolic
     performance was based on the linear regression of regional stroke work and
     end-diastolic (ED) SL. Regional diastolic properties were assessed using
     the curvilinear relationships between LVEDP and strain (epsilon) as well
     as LVEDP and EDSL. At study termination, cellular engraftment was
     characterized histologically in a blinded fashion. Indices of diastolic
     performance were improved following CCM with either Mb or Fb. However,
     only Mb transplantation improved systolic performance; Fb
     transfer actually resulted in a significant decline in systolic
     performance. These data suggest that both contractile and noncontractile
     cells can improve regional material properties or structural integrity of
     terminally injured heart, as reflected by improvements in diastolic
     performance. However, only Mb improved systolic performance in the damaged
     region, supporting the role of myogenic cells in augmenting contraction.
     Further studies are needed to define the mechanism by which these effects
     occur and to evaluate the long-term safety and efficacy of CCM with any
     cell type.
TI   Comparison of benefits on myocardial performance of cellular
     cardiomyoplasty with skeletal myoblasts and
     fibroblasts.
AB   . . . can be seen with other cell types. Thus, we compared indices of
     regional contractile (systolic) and diastolic myocardial performance
     following transplantation of either autologous skeletal
     myoblasts (Mb) or dermal fibroblasts (Fb) into
     chronically injured rabbit heart. In vivo left ventricular (LV) pressure
     (P) and regional segment length (SL) were determined. . .
     micromanometry and sonomicrometry 1 week following LV cryoinjury (CRYO)
     and again 3 weeks after autologous skeletal Mb or dermal Fb
     transplantation. Quantification of systolic performance was based
     on the linear regression of regional stroke work and end-diastolic (ED)
     SL. Regional diastolic. . . in a blinded fashion. Indices of diastolic
     performance were improved following CCM with either Mb or Fb. However,
     only Mb transplantation improved systolic performance; Fb
     transfer actually resulted in a significant decline in systolic
     performance. These data suggest that both contractile. . .
CT   Check Tags: Animal; Comparative Study; Human; Support, U.S. Gov't, P.H.S.
     *Cardiomyoplasty: MT, methods
       *Cell Transplantation
      Diastole
       *Fibroblasts: TR, transplantation
      Heart: AH, anatomy & histology
     *Heart: PH, physiology
      Microscopy, Fluorescence
     *Muscle, Skeletal: CY, cytology
```

**Muscle, Skeletal: TR, transplantation**
Myocardial Diseases: PA, pathology
Myocardial Diseases: SU, surgery
Myocardium: CY, cytology
Myocardium: PA, pathology
Rabbits
Skin: CY, cytology
Systole
**Transplantation, Autologous**

L8 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:547368 CAPLUS
DOCUMENT NUMBER: 133:140194
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. Ser. No. 863,882.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
US 1998-99994 A2 19980619
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Tissue **transplants** for repair of myocardial scars
AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
ST heart scar tissue repair **graft** gene therapy
IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-XL; tissue **transplants** for repair of myocardial scars)
IT Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)
IT Animal tissue
(artificial; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)
IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)
IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)
IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)
IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(infarction; tissue **transplants** for repair of myocardial scars)
IT Adhesives
(medical; tissue **transplants** for repair of myocardial scars)
IT Heart
(myocyte; tissue **transplants** for repair of myocardial scars)
IT Heart
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)
IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)
IT Polyester fibers, biological studies
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial

scars)
IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(scar, repair of; tissue **transplants** for repair of myocardial scars)
IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)
IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)
IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)
IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)
IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)
IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L8 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:811354 CAPLUS
DOCUMENT NUMBER: 132:54829
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Le, Ren-Ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |

PRIORITY APPLN. INFO.: US 1998-99994 A2 19980619
US 1997-863882 A2 19970528
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Tissue **transplants** for repair of myocardial scars
AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart.
ST heart scar tissue repair **graft** gene therapy
IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-XL; tissue **transplants** for repair of myocardial scars)
IT Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)
IT Animal tissue

(artificial; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)
IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(defects, repair of; tissue **transplants** for repair of myocardial scars)
IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)
IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)
IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(infarction; tissue **transplants** for repair of myocardial scars)
IT Adhesives
(medical; tissue **transplants** for repair of myocardial scars)
IT Heart
(myocyte; tissue **transplants** for repair of myocardial scars)
IT Heart
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)
IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)
IT Polyester fibers, biological studies
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT Heart, disease
(scarring of; tissue **transplants** for repair of myocardial scars)
IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)
IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)
IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)
IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)
IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)
IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L8 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:795115 CAPLUS
DOCUMENT NUMBER: 130:43430
TITLE: **Transplants** for myocardial scars and method and cellular preparations therefor
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9854301 | A2 | 19981203 | WO 1998-CA520 | 19980528 |
| WO 9854301 | A3 | 19990401 | | |

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,

NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
CM, GA, GN, ML, MR, NE, SN, TD, TG

US 6110459 A 20000829 US 1997-863882 19970528
AU 9876331 A1 19981230 AU 1998-76331 19980528
EP 985028 A2 20000315 EP 1998-923950 19980528
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, FI
JP 2002501513 T2 20020115 JP 1999-500040 19980528
PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
WO 1998-CA520 W 19980528

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

TI **Transplants** for myocardial scars and method and cellular preparations therefor

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are esp. useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

ST **transplant** heart scar cell

IT Adhesives
(biol.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Atrium (heart)
Culture media
Fibroblast
Granulation tissue
Heart
Mammal (Mammalia)
Mammalian tissue culture
Myoblast
Phosphate-buffered saline
Smooth muscle
**Transplant** (organ)
Vascular endothelium
Wound
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Enzymes, biological studies
Growth factors (animal)
Transforming growth factor .beta.1
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Platelet-derived growth factors
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(.beta.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT 50-99-7, D-Glucose, biological studies 56-81-5, 1,2,3-Propanetriol, biological studies 60-00-4, Edta, biological studies 60-24-2 9001-12-1, Collagenase 9002-07-7, Trypsin 67763-96-6, Insulin-like growth factor I 67763-97-7, Insulin-like growth factor II 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

L8 ANSWER 5 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:192507 BIOSIS
DOCUMENT NUMBER: PREV200100192507
TITLE: **Transplants** for myocardial scars and methods and cellular preparations.
AUTHOR(S): Mickle, Donald A. G. (1); Li, Ren-Ke; Weisel, Richard D.
CORPORATE SOURCE: (1) 7 McGillivary Ave., Toronto, Ont. Canada
PATENT INFORMATION: US 6110459 August 29, 2000
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Aug. 29, 2000) Vol. 1237, No. 5, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are especially useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

TI **Transplants** for myocardial scars and methods and cellular preparations.

AB A method is provided for forming a **graft** in heart tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The **grafts** are especially useful in treating scar tissue on the heart. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

IT Methods & Equipment
cardiomyocyte culturing method: cell culture method; cardiomyocyte **grafting**: therapeutic method, **transplantation** method; cardiomyocyte isolation method: cell isolation method

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU

```
L2             7 S L1 AND MYOBLAST
L3             5 DUP REM L2 (2 DUPLICATES REMOVED)
L4          1946 S SKELET? (3N) MYOBLAST?
L5           123 S L4 (10N) FIBROBLAST?
L6            56 DUP REM L5 (67 DUPLICATES REMOVED)
L7             5 S L6 AND TRANSPLANT?
L8             5 S L6 AND (TRANSPLANT? OR GRAFT?)

=> s l6 (P) ((EGF) or (epidermal (1N) growth (1N) factor) )
L9             0 L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )

=> s l6 and laminin
L10            3 L6 AND LAMININ

=> s l6 and ((EGF) or (epidermal (1N) growth (1N) factor) )
L11            1 L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )

=> s l6 and collagen
L12            4 L6 AND COLLAGEN

=> s l4 or l11 or l10
L13         1946 L4 OR L11 OR L10

=> s l12 or l11 or l10
L14            6 L12 OR L11 OR L10

=> dup rem l14
PROCESSING COMPLETED FOR L14
L15            6 DUP REM L14 (0 DUPLICATES REMOVED)

=> dis l15 ibib abs kwic

L15  ANSWER 1 OF 6  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:   1992:103639  BIOSIS
DOCUMENT NUMBER:    BR42:43639
TITLE:              CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND
                    ITS HOMOLOGY WITH RAT GP46 CHICK HSP47 AND MOUSE J6
                    PROTEINS.
AUTHOR(S):          CLARKE E P; SANWAL B D
CORPORATE SOURCE:   DEP. BIOCHEM., UNIV. WESTERN ONTARIO, LONDON, CAN. N6H 2N9.
SOURCE:             Biochim. Biophys. Acta, (1992) 1129 (2), 246-248.
                    CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT:       BR; OLD
LANGUAGE:           English
TI   CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND ITS HOMOLOGY
     WITH RAT GP46 CHICK HSP47 AND MOUSE J6 PROTEINS.
IT   Miscellaneous Descriptors
        COMPLEMENTARY DNA SKELETAL MYOBLASTS
        FIBROBLASTS AMINO ACID SEQUENCE


=> dis l15 1-6 ibib abs kwic

L15  ANSWER 1 OF 6  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:   1992:103639  BIOSIS
DOCUMENT NUMBER:    BR42:43639
TITLE:              CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND
                    ITS HOMOLOGY WITH RAT GP46 CHICK HSP47 AND MOUSE J6
                    PROTEINS.
AUTHOR(S):          CLARKE E P; SANWAL B D
CORPORATE SOURCE:   DEP. BIOCHEM., UNIV. WESTERN ONTARIO, LONDON, CAN. N6H 2N9.
SOURCE:             Biochim. Biophys. Acta, (1992) 1129 (2), 246-248.
                    CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT:       BR; OLD
LANGUAGE:           English
TI   CLONING OF A HUMAN COLLAGEN-BINDING PROTEIN AND ITS HOMOLOGY
     WITH RAT GP46 CHICK HSP47 AND MOUSE J6 PROTEINS.
IT   Miscellaneous Descriptors
        COMPLEMENTARY DNA SKELETAL MYOBLASTS
        FIBROBLASTS AMINO ACID SEQUENCE

L15  ANSWER 2 OF 6     MEDLINE
ACCESSION NUMBER:   86243312     MEDLINE
DOCUMENT NUMBER:    86243312   PubMed ID: 3013291
TITLE:              Identification of the fibroblast growth factor
                    receptor of Swiss 3T3 cells and mouse skeletal
                    muscle myoblasts.
AUTHOR:             Olwin B B; Hauschka S D
SOURCE:             BIOCHEMISTRY, (1986 Jun 17) 25 (12) 3487-92.
                    Journal code: A0G; 0370623. ISSN: 0006-2960.
PUB. COUNTRY:       United States
                    Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        198608
ENTRY DATE:         Entered STN: 19900321
                    Last Updated on STN: 19970203
                    Entered Medline: 19860820
AB   Two distinct fibroblast growth factors (FGF) were purified to homogeneity
     from bovine brain on the basis of their ability to stimulate skeletal
     muscle myoblast proliferation. These growth factors are also mitogenic for
     Swiss 3T3 cells and appear to be closely related to or identical with
     previously isolated anionic and cationic fibroblast growth factors. The
     half-maximum concentrations (EC50) for stimulation of myoblast DNA
     synthesis by the anionic and cationic growth factors were 30pM and 1pM,
     respectively. In contrast, an EC50 of 45 pM was observed for stimulation
     of 3T3 cell DNA synthesis by both growth factors. Binding of 125I-labeled
     anionic FGF was saturable with apparent Kd values of 45 pM and 11 pM and
     approximately 60 000 and 2000 receptor sites per cell for 3T3 cells and
     MM14 murine myoblasts, respectively. Unlabeled anionic and cationic FGF
     equally displaced 125I-labeled anionic FGF from 3T3 cells while cationic
     FGF was more potent than anionic FGF for displacement from skeletal muscle
     myoblasts, demonstrating that a single receptor binds the two distinct
     growth factors. Binding was specific for these factors since
     platelet-derived growth factor, insulin, insulin-like growth
     factor 1, epidermal growth factor,
     and nerve growth factor were unable to displace bound 125I-labeled anionic
     FGF from Swiss 3T3 cells. Chemical cross-linking of specifically bound
     125I-labeled anionic FGF to 3T3 cells and MM14 myoblasts identified a
     single detergent-soluble FGF receptor with an apparent molecular weight of
     165 000.
TI   Identification of the fibroblast growth factor receptor of Swiss
     3T3 cells and mouse skeletal muscle myoblasts.
```

AB . . . receptor binds the two distinct growth factors. Binding was specific for these factors since platelet-derived growth factor, insulin, insulin-like growth **factor** 1, **epidermal growth factor**, and nerve growth factor were unable to displace bound 125I-labeled anionic FGF from Swiss 3T3 cells. Chemical cross-linking of specifically. . .

L15 ANSWER 3 OF 6 MEDLINE
ACCESSION NUMBER: 87005586 MEDLINE
DOCUMENT NUMBER: 87005586 PubMed ID: 3758484
TITLE: Role of **laminin** and fibronectin in selecting myogenic versus fibrogenic cells from skeletal muscle cells in vitro.
AUTHOR: Kuhl U; Ocalan M; Timpl R; von der Mark K
SOURCE: DEVELOPMENTAL BIOLOGY, (1986 Oct) 117 (2) 628-35. Journal code: E7T; 0372762. ISSN: 0012-1606.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198611
ENTRY DATE: Entered STN: 19900302
Last Updated on STN: 19900302
Entered Medline: 19861114

AB Growth of embryonic skeletal muscle occurs by fusion of multinucleated myotubes with differentiated, fusion-capable myoblasts. Selective recognition seems to prevent fusion of myotubes with nonmyogenic cells such as muscle fibroblasts, endothelial cells, or nerve cells, but the nature of the signal is as yet unknown. Here we provide evidence that one of the selection mechanisms may be the enhanced affinity for **laminin** of myogenic cells as compared to fibrogenic cells. Growing myotubes in myoblast cultures accumulate **laminin** and type IV **collagen** on their surface in patches and strands as the first step in assembling a continuous basal lamina on mature myofibers (U. Kuhl, R. Timpl, and K. von der Mark (1982), Dev. Biol. 93, 344-359). Fibronectin, on the other hand, assembles into an intercellular fibrous meshwork not associated with the free myotube surface. Over a brief time period (10-20 min) myoblasts from embryonic mouse thigh muscle adhere faster to **laminin** than do fibroblasts from the same tissue; these adhere faster to fibronectin. When a mixture of the cells is plated for 20 min on **laminin**/type IV **collagen** substrates, only myogenic cells adhere, giving rise to cultures with more than 90% fusion after 2 weeks; on fibronectin/type I **collagen** in the same time primarily fibroblastic cells adhere, giving rise to cultures with less than 10% nuclei in myotubes. The differential affinities of myoblasts for basement membrane constituents and of fibroblasts for interstitial connective tissue components may play a role in sorting out **myoblasts** from **fibroblasts** in **skeletal** muscle development.
TI Role of **laminin** and fibronectin in selecting myogenic versus fibrogenic cells from skeletal muscle cells in vitro.
AB . . . is as yet unknown. Here we provide evidence that one of the selection mechanisms may be the enhanced affinity for **laminin** of myogenic cells as compared to fibrogenic cells. Growing myotubes in myoblast cultures accumulate **laminin** and type IV **collagen** on their surface in patches and strands as the first step in assembling a continuous basal lamina on mature myofibers. . . the free myotube surface. Over a brief time period (10-20 min) myoblasts from embryonic mouse thigh muscle adhere faster to **laminin** than do fibroblasts from the same tissue; these adhere faster to fibronectin. When a mixture of the cells is plated for 20 min on **laminin**/type IV **collagen** substrates, only myogenic cells adhere, giving rise to cultures with more than 90% fusion after 2 weeks; on fibronectin/type I **collagen** in the same time primarily fibroblastic cells adhere, giving rise to cultures with less than 10% nuclei in myotubes. The. . . myoblasts for basement membrane constituents and of fibroblasts for interstitial connective tissue components may play a role in sorting out **myoblasts** from **fibroblasts** in **skeletal** muscle development.
CT . . .
Basement Membrane: PH, physiology
Cell Adhesion
Cell Differentiation
Cells, Cultured
Extracellular Matrix: PH, physiology
*Fibroblasts: CY, cytology
*Fibronectins: PH, physiology
***Laminin: PH, physiology**
Mice
Muscles: CY, cytology
*Muscles: EM, embryology
CN 0 (Fibronectins); 0 (**Laminin**)

L15 ANSWER 4 OF 6 MEDLINE
ACCESSION NUMBER: 86059663 MEDLINE
DOCUMENT NUMBER: 86059663 PubMed ID: 2933413
TITLE: The cell substrate attachment (CSAT) antigen has properties of a receptor for **laminin** and fibronectin.
AUTHOR: Horwitz A; Duggan K; Greggs R; Decker C; Buck C
CONTRACT NUMBER: CA 10815 (NCI)
CA 19144 (NCI)
GM23244 (NIGMS)
SOURCE: JOURNAL OF CELL BIOLOGY, (1985 Dec) 101 (6) 2134-44. Journal code: HMV; 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198601
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19860103

AB The cell substrate attachment (CSAT) antigen is an integral membrane glycoprotein complex that participates in the adhesion of cells to extracellular molecules. The CSAT monoclonal antibody, directed against this complex, inhibited adhesion of cardiac and tendon **fibroblasts** and **skeletal myoblasts** to both **laminin** and fibronectin, thus implicating the CSAT antigen in adhesion to these extracellular molecules. Equilibrium gel filtration was used to explore the hypothesis that the CSAT antigen functions as a cell surface receptor for both **laminin** and fibronectin. In this technique, designed for rapidly exchanging equilibria, the gel filtration column is pre-equilibrated with extracellular ligand to ensure receptor occupancy during its journey through the column. Both **laminin** and

fibronectin formed complexes with the CSAT antigen. The association with **laminin** was inhibited by the CSAT monoclonal antibody; the associations with both fibronectin and **laminin** were inhibited by synthetic peptides containing the fibronectin cell-binding sequence. Estimates of the dissociation constants by equilibrium gel filtration agree well with those available from other measurements. This suggests that these associations are biologically significant. SDS PAGE showed that all three glycoproteins comprising the CSAT antigen were present in the antigen-ligand complexes. Gel filtration and velocity sedimentation were used to show that the three bands comprise and oligomeric complex, which provides an explanation for their functional association. The inhibition of adhesion by the CSAT monoclonal antibody and the association of the purified antigen with extracellular ligands are interpreted as strongly implicating the CSAT antigen as a receptor for both fibronectin and **laminin** and perhaps for other extracellular molecules as well.

TI The cell substrate attachment (CSAT) antigen has properties of a receptor for **laminin** and fibronectin.

AB . . . adhesion of cells to extracellular molecules. The CSAT monoclonal antibody, directed against this complex, inhibited adhesion of cardiac and tendon **fibroblasts** and **skeletal myoblasts** to both **laminin** and fibronectin, thus implicating the CSAT antigen in adhesion to these extracellular molecules. Equilibrium gel filtration was used to explore the hypothesis that the CSAT antigen functions as a cell surface receptor for both **laminin** and fibronectin. In this technique, designed for rapidly exchanging equilibria, the gel filtration column is pre-equilibrated with extracellular ligand to ensure receptor occupancy during its journey through the column. Both **laminin** and fibronectin formed complexes with the CSAT antigen. The association with **laminin** was inhibited by the CSAT monoclonal antibody; the associations with both fibronectin and **laminin** were inhibited by synthetic peptides containing the fibronectin cell-binding sequence. Estimates of the dissociation constants by equilibrium gel filtration agree. . . purified antigen with extracellular ligands are interpreted as strongly implicating the CSAT antigen as a receptor for both fibronectin and **laminin** and perhaps for other extracellular molecules as well.

CT . . .
diagnostic use
*Antigens, Surface
Antigens, Surface: IM, immunology
*Cell Adhesion
Cells, Cultured
Chickens
*Extracellular Matrix: ME, metabolism
*Fibronectins: ME, metabolism
***Laminin: ME, metabolism**
Macromolecular Systems
Muscles: CY, cytology
Receptors, Fibronectin
*Receptors, Immunologic: ME, metabolism
**Receptors, Laminin**
Tendons: CY, cytology

CN 0 (Antibodies, Monoclonal); 0 (Antigens, Surface); 0 (Fibronectins); 0 (**Laminin**); 0 (Macromolecular Systems); 0 (Receptors, Fibronectin); 0 (Receptors, Immunologic); 0 (Receptors, **Laminin**)

L15 ANSWER 5 OF 6 MEDLINE
ACCESSION NUMBER: 85128115 MEDLINE
DOCUMENT NUMBER: 85128115 PubMed ID: 6396135
TITLE: Role of muscle fibroblasts in the deposition of type-IV **collagen** in the basal lamina of myotubes.
AUTHOR: Kuhl U; Ocalan M; Timpl R; Mayne R; Hay E; von der Mark K
CONTRACT NUMBER: AM 31394 (NIADDK)
HD 00143 (NICHD)
SOURCE: DIFFERENTIATION, (1984) 28 (2) 164-72.
Journal code: E99; 0401650. ISSN: 0301-4681.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198504
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19970203
Entered Medline: 19850417

AB In cell cultures of quail, chick, or mouse skeletal muscle, both myogenic and fibrogenic cells synthesize and secrete type-IV **collagen**, a major structural component of the basal lamina. Type-IV **collagen**, together with **laminin**, forms characteristic patches and strands on the surface of developing myotubes, marking the onset of basement-membrane formation. The pattern for type-IV **collagen** and **laminin** is unique to these proteins and is not paralleled by other matrix proteins, such as fibronectin or type-I or -III **collagen**. In the present study, we used species-specific antibodies to either mouse or chick type-IV **collagen** to demonstrate the ability of fibroblast--derived type-IV **collagen** to incorporate in the basal lamina of myotubes. In combination cultures of embryonic quail **skeletal myoblasts** and mouse muscle **fibroblasts**, antibodies specific for mouse type-IV **collagen** revealed the deposition of type-IV **collagen** on the surface of quail myotubes in the pattern typical of the beginning of basement-membrane formation. Control cultures consisting of only quail muscle cells containing myoblasts and fibroblasts demonstrated no such reaction with these antibodies. Deposits of mouse type-IV **collagen** were also observed on the surface of quail myotubes when conditioned medium from mouse muscle fibroblasts was added to quail myoblast cultures. Similarly, in combination cultures of mouse myoblasts and chick muscle fibroblasts, chick type-IV-**collagen** deposits were identified on the surface of mouse myotubes. These results indicate that type-IV **collagen** synthesized by muscle fibroblasts may be incorporated into the basal lamina forming on the plasmalemma of myotubes, and may explain ultrastructural studies by Lipton on the contribution of fibroblasts to the formation of basement membranes in skeletal muscle.

TI Role of muscle fibroblasts in the deposition of type-IV **collagen** in the basal lamina of myotubes.

AB In cell cultures of quail, chick, or mouse skeletal muscle, both myogenic and fibrogenic cells synthesize and secrete type-IV **collagen**, a major structural component of the basal lamina. Type-IV **collagen**, together with **laminin**, forms characteristic patches and strands on the surface of developing myotubes, marking the onset of basement-membrane formation. The pattern for type-IV **collagen** and **laminin** is unique to these proteins and is not paralleled by other matrix proteins, such as fibronectin or type-I or -III **collagen**. In the present study, we used species-specific

antibodies to either mouse or chick type-IV **collagen** to demonstrate the ability of fibroblast--derived type-IV **collagen** to incorporate in the basal lamina of myotubes. In combination cultures of embryonic quail **skeletal myoblasts** and mouse muscle **fibroblasts**, antibodies specific for mouse type-IV **collagen** revealed the deposition of type-IV **collagen** on the surface of quail myotubes in the pattern typical of the beginning of basement-membrane formation. Control cultures consisting of only quail muscle cells containing myoblasts and fibroblasts demonstrated no such reaction with these antibodies. Deposits of mouse type-IV **collagen** were also observed on the surface of quail myotubes when conditioned medium from mouse muscle fibroblasts was added to quail myoblast cultures. Similarly, in combination cultures of mouse myoblasts and chick muscle fibroblasts, chick type-IV-**collagen** deposits were identified on the surface of mouse myotubes. These results indicate that type-IV **collagen** synthesized by muscle fibroblasts may be incorporated into the basal lamina forming on the plasmalemma of myotubes, and may explain. . .

CT Check Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
Basement Membrane: ME, metabolism
Cells, Cultured
Chick Embryo
***Collagen: ME, metabolism**
Fibroblasts: ME, metabolism
Fluorescent Antibody Technique
Histocytochemistry
Mice
Microscopy, Electron
Muscles: EM, embryology
*Muscles: ME, metabolism
Muscles: UL,. . .

RN **9007-34-5 (Collagen)**

L15 ANSWER 6 OF 6 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 80233287 EMBASE
DOCUMENT NUMBER: 1980233287
TITLE: Analysis of cartilage differentiation from skeletal muscle grown on bone matrix. I. Ultrastructural aspects.
AUTHOR: Nathanson M.A.; Hay E.D.
CORPORATE SOURCE: Dept. Anat., Harvard Med. Sch., Boston, Mass. 02115, United States
SOURCE: Developmental Biology, (1980) 78/2 (301-331).
CODEN: DEBIAO
COUNTRY: United States
DOCUMENT TYPE: Journal
FILE SEGMENT: 021 Developmental Biology and Teratology
LANGUAGE: English

AB Previous studies have demonstrated that embryonic skeletal muscle is competent to form hyaline cartilage when cultured in vitro on demineralized bone matrix. The present experiments were undertaken to determine the nature of the morphological alterations which attend this phenotypic transformation and to investigate the ultrastructural characteristics of the **myoblasts** and **fibroblasts** of **skeletal** muscle during the transformation. Nineteen-day embryonic rat limb muscles were minced and the tissue fragments explanted to bone matrix or **collagen** gels. The trauma of excision and mincing causes syncytial myotubes to degenerate and the nuclei of mononucleate cells to enter a heterochromatic 'resting stage.'. In culture, nuclei of mononucleate cells rapidly regain euchromasia. No myoblast or fibroblast cell death can be detected. On bone matrix, the entire mononucleate population transforms into fibroblast-like cells. Myoblasts are the major contributor to this population; they dissociate from the degenerate myotubes and begin to acquire endoplasmic reticulum by 24 h in vitro. The fibroblast-like morphology persists through 4 days in vitro. By 6 days in vitro some of these fibroblast-like cells acquire the phenotypic characteristics of chondrocytes, and by 10 days masses of hyaline cartilage are found. In control explants of skeletal muscle onto **collagen** gels, the heterochromatic nuclei of the mononucleated cells expand after 24 hr in vitro, but the mononucleated cells remain as myoblasts and fibroblasts and begin to regenerate skeletal muscle by 4 days in vitro. No cartilage forms. The results indicate that both myoblasts and fibroblasts have chondrogenic potential when grown on demineralized bone. It is tempting to conclude that the embryonic mesenchymal cells which give rise to skeletal muscle, cartilage, and other connective tissue of the limb have similar developmental potentials and that local influences, rather than separate cell lineages, account for the final pattern of differentiation.

AB . . . determine the nature of the morphological alterations which attend this phenotypic transformation and to investigate the ultrastructural characteristics of the **myoblasts** and **fibroblasts** of **skeletal** muscle during the transformation. Nineteen-day embryonic rat limb muscles were minced and the tissue fragments explanted to bone matrix or **collagen** gels. The trauma of excision and mincing causes syncytial myotubes to degenerate and the nuclei of mononucleate cells to enter. . . characteristics of chondrocytes, and by 10 days masses of hyaline cartilage are found. In control explants of skeletal muscle onto **collagen** gels, the heterochromatic nuclei of the mononucleated cells expand after 24 hr in vitro, but the mononucleated cells remain as. . .

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU
L2 7 S L1 AND MYOBLAST
L3 5 DUP REM L2 (2 DUPLICATES REMOVED)
L4 1946 S SKELET? (3N) MYOBLAST?
L5 123 S L4 (10N) FIBROBLAST?
L6 56 DUP REM L5 (67 DUPLICATES REMOVED)
L7 5 S L6 AND TRANSPLANT?
L8 5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9 0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10 3 S L6 AND LAMININ
L11 1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12 4 S L6 AND COLLAGEN
L13 1946 S L4 OR L11 OR L10
L14 6 S L12 OR L11 OR L10
L15 6 DUP REM L14 (0 DUPLICATES REMOVED)

=> s l6 and cultur?

```
L16         34 L6 AND CULTUR?

=> s l16 and (in (1N)vitro)
L17          1 L16 AND (IN (1N) VITRO)

=> dis l17 ibib abs kwic

L17  ANSWER 1 OF 1     MEDLINE
ACCESSION NUMBER:   95086047     MEDLINE
DOCUMENT NUMBER:    95086047   PubMed ID: 7993882
TITLE:              In vitro separation of embryonic chick
                    skeletal muscle myoblasts and
                    fibroblasts: comparison of their characteristics.
AUTHOR:             Lamosova D; Jurani M; Vanekova M
CORPORATE SOURCE:   Institute of Animal Biochemistry and Genetics, Slovak
                    Academy of Sciences, Ivanka pri Dunaji.
SOURCE:             PHYSIOLOGICAL RESEARCH, (1994) 43 (3) 157-61.
                    Journal code: AZ7; 9112413. ISSN: 0862-8408.
PUB. COUNTRY:       Czech Republic
                    Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        199501
ENTRY DATE:         Entered STN: 19950126
                    Last Updated on STN: 19950126
                    Entered Medline: 19950117
AB   The aim of the present experiments was to test two methods of separating
     myoblasts and fibroblasts (selective plating, differential trypsinization)
     from chick embryonal skeletal muscle and to compare their characteristics.
     Ornithine decarboxylase (ODC) activity, the amount of incorporated
     [3H]leucine into proteins and incorporation of [3H]thymidine into DNA were
     significantly higher in myoblasts than in fibroblasts separated by
     selective plating. When comparing myoblasts and fibroblasts separated by
     differential trypsinization, significantly higher ODC activity and greater
     incorporation of [3H]leucine into protein, but no incorporation of
     [3H]thymidine into DNA, were found in myoblasts. Higher ODC activity and
     greater incorporation of labelled leucine were found in fibroblasts
     separated by the selective plating than in fibroblasts separated by
     differential trypsinization. The incorporation of labelled thymidine into
     DNA was higher in myoblasts separated by selective plating than in
     myoblasts obtained by differential trypsinization. The method of selective
     plating appears to be simpler and adequate for obtaining myoblastic and
     fibroblastic cell cultures with sufficiently low mutual
     contamination. The method of differential trypsinization involves a more
     drastic treatment of cells and is more time consuming.
TI   In vitro separation of embryonic chick
     skeletal muscle myoblasts and fibroblasts:
     comparison of their characteristics.
AB   . . . by differential trypsinization. The method of selective plating
     appears to be simpler and adequate for obtaining myoblastic and
     fibroblastic cell cultures with sufficiently low mutual
     contamination. The method of differential trypsinization involves a more
     drastic treatment of cells and is more. . .


=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1          225 S EDGE A?/AU
L2            7 S L1 AND MYOBLAST
L3            5 DUP REM L2 (2 DUPLICATES REMOVED)
L4         1946 S SKELET? (3N) MYOBLAST?
L5          123 S L4 (10N) FIBROBLAST?
L6           56 DUP REM L5 (67 DUPLICATES REMOVED)
L7            5 S L6 AND TRANSPLANT?
L8            5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9            0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10           3 S L6 AND LAMININ
L11           1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12           4 S L6 AND COLLAGEN
L13        1946 S L4 OR L11 OR L10
L14           6 S L12 OR L11 OR L10
L15           6 DUP REM L14 (0 DUPLICATES REMOVED)
L16          34 S L6 AND CULTUR?
L17           1 S L16 AND (IN (1N)VITRO)

=> s l4 (P)  ((FGF?) or (fibroblast (1N) growth (1N) factor) or (Transforming (1N) growth (1N) factor (1N) beta) or TGF? or (Interleukin (1N) 10) or
(IL (1N) 10) or (CTLA4 (1N) Ig) or (bcl (1N) 2))
   3 FILES SEARCHED...
L18         196 L4 (P) ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (TRAN
                SFORMING (1N) GROWTH (1N) FACTOR (1N) BETA) OR TGF? OR (INTERLEU
                KIN (1N) 10) OR (IL (1N) 10) OR (CTLA4 (1N) IG) OR (BCL (1N)
                2))

=> s l18 and (cardiac or heart)
L19          27 L18 AND (CARDIAC OR HEART)

=> dup rem l19
PROCESSING COMPLETED FOR L19
L20          12 DUP REM L19 (15 DUPLICATES REMOVED)

=> dis l20 1-12 ibib abs kwic

L20  ANSWER 1 OF 12     MEDLINE                         DUPLICATE 1
ACCESSION NUMBER:   2001574801     MEDLINE
DOCUMENT NUMBER:    21538784   PubMed ID: 11502737
TITLE:              Control of myoblast proliferation with a synthetic ligand.
AUTHOR:             Whitney M L; Otto K G; Blau C A; Reinecke H; Murry C E
CORPORATE SOURCE:   Department of Bioengineering, University of Washington,
                    Seattle, Washington 98195-7335, USA.
CONTRACT NUMBER:    HL07312 (NHLBI)
                    K08HL03094 (NHLBI)
                    P01HL03174 (NHLBI)
                    R01HL61553 (NHLBI)
SOURCE:             JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Nov 2) 276 (44)
                    41191-6.
                    Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY:       United States
                    Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
```

ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011030
Last Updated on STN: 20020123
Entered Medline: 20011207

AB **Skeletal myoblast** grafts can form contractile tissue to replace scar and repair injured myocardium. Although potentially therapeutic, generating reproducible and sufficiently large grafts remains a challenge. To control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast growth factor** receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast growth factor** (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked myotube formation and myosin heavy chain expression and stimulated mitogen-activated protein (MAP) kinase phosphorylation in transfected cells. Non-transfected cells differentiated normally and showed no MAP kinase phosphorylation with dimerizer treatment. Furthermore, myoblasts treated with dimerizer for 30 days in culture reduced MAP kinase phosphorylation, withdrew from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast growth factor** receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast grafting may allow control over graft size and ultimately improve **cardiac** function.

AB **Skeletal myoblast** grafts can form contractile tissue to replace scar and repair injured myocardium. Although potentially therapeutic, generating reproducible and sufficiently large. . . control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast growth factor** receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast growth factor** (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked myotube formation. . . from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast growth factor** receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast grafting may allow control over graft size and ultimately improve **cardiac** function.

L20 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:246422 CAPLUS
DOCUMENT NUMBER: 135:44536
TITLE: Differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines
AUTHOR(S): Adams, Volker; Lenk, Karsten; Schubert, Andreas; Gielen, Stephan; Schuler, Gerhard; Hambrecht, Rainer
CORPORATE SOURCE: Department of Cardiology, Heart Center, University of Leipzig, Leipzig, Germany
SOURCE: Cytokine (2001), 13(6), 342-348
CODEN: CYTIE9; ISSN: 1043-4666
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The mechanism underlying exercise intolerance in chronic **heart** failure is still unclear. An increased concn. of inflammatory cytokines could be detected in the serum of patients with chronic **heart** failure (CHF) exhibiting a correlation with the severity of the disease. The variety of mol. alterations triggered by these cytokines in the skeletal muscle is almost unknown. The study was designed to analyze the differential gene expression in skeletal muscle myoblasts after stimulation with inflammatory cytokines. L6 rat skeletal muscle myoblasts were incubated for 24 h with a combination of IL-1.beta./IFN-.gamma. and the differential gene expression profile was detd. by a PCR-based subtractive hybridization method. Out of 173 picked clones 141 different sequences could be identified. By comparison with Genebank, the identity of 73 genes (51.7%) could be confirmed, whereas the rest did not show a homol. to any known gene. Some of the identified genes are known to be altered in patients with CHF. In summary, the results of this study provide information about changes in gene expression after exposure of skeletal muscle cells to inflammatory cytokines. This information may yield a new gene pool, worthwhile to be analyzed in skeletal muscle of patients with chronic **heart** failure. (c) 2001 Academic Press.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB The mechanism underlying exercise intolerance in chronic **heart** failure is still unclear. An increased concn. of inflammatory cytokines could be detected in the serum of patients with chronic **heart** failure (CHF) exhibiting a correlation with the severity of the disease. The variety of mol. alterations triggered by these cytokines in the skeletal muscle is almost unknown. The study was designed to analyze the differential gene expression in skeletal muscle myoblasts after stimulation with inflammatory cytokines. L6 rat skeletal muscle myoblasts were incubated for 24 h with a combination of IL-1.beta./IFN-.gamma. and the differential gene expression profile was detd. by a PCR-based subtractive hybridization method. Out of 173 picked clones 141 different sequences could be identified. By comparison with Genebank, the identity of 73 genes (51.7%) could be confirmed, whereas the rest did not show a homol. to any known gene. Some of the identified genes are known to be altered in patients with CHF. In summary, the results of this study provide information about changes in gene expression after exposure of skeletal muscle cells to inflammatory cytokines. This information may yield a new gene pool, worthwhile to be analyzed in skeletal muscle of patients with chronic **heart** failure. (c) 2001 Academic Press.

ST gene expression interleukin interferon muscle myoblast chronic **heart** failure

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(14-3-3 protein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(14-3-3; differentially expressed genes in L6 rat skeletal muscle

myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Tropomyosins
RL: BSU (Biological study, unclassified); BIOL (Biological study) (4; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADF (actin-depolymg. factor); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (ADF-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (AP-2 (clathrin-coated vesicle assembly protein 2), AP2.alpha.-c; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (AP2.alpha.-c-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (BAF 170-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (BAF170 (BRG1-assocd. factor 170); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (CBP-50 (crotoxin-binding protein, 50,000-mol.-wt.); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (CBP-50; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (CTGF (connective tissue growth factor); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (CTGF; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (DNA primase p58 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (IGF2R; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (IP-10; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Cytokines
RL: BSU (Biological study, unclassified); BIOL (Biological study) (IP10 (IFN-.gamma.-inducible protein, 10,000-mol.-wt.); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (MRC OX-2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (MSSP-1 (c-myc gene single-strand binding protein-1); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (MSSP-1-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (N-myristoyltransferase-1-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (NDR1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study) (NDR1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)

(P38 MAPK-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(PABP (poly(A)-binding protein); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(RNF-4 (ring finger-4); differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(RNF-4; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(TCP-1, TCP-1a; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(TCP-1a; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Annexins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(V; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(WDNM2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(annexin V-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(calponin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(collagen type III .alpha.1 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(collagen type IV .alpha.3 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Muscle
Myoblast
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Interleukin 1.beta.
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Calponin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Fibronectins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Insulin-like growth factor II receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT **Interleukin 10**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat **skeletal** muscle **myoblasts** after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Initiation factors (protein formation)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(eIF 5; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(eIF-5-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT **Heart**, disease
(failure, chronic; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(fibronectin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(gelatinase A-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

IT Cytokines
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(inflammatory; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(**interleukin** 10-encoding; differentially expressed genes in L6 rat **skeletal** muscle **myoblasts** after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Glycoproteins, specific or class
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(membrane, type I, MRC OX-2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(p19 phosphoprotein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Phosphoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p19; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(poly(A)-binding protein-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(procollagen .alpha.2 subunit-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(procollagens, type I, .alpha.2 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(ribonucleotide reductase-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(stearoyl CoA desaturase 2-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(tropomyosin 4-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type III, .alpha.1 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type IV, .alpha.3 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Actins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(.beta.-; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.beta.-actin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Gene, animal
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(.beta.2-microglobulin-encoding; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Microglobulins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(.beta.2-; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT Interferons
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(.gamma.; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 110071-61-9
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(1; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9014-34-0
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(2; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9047-64-7, Ribonucleotide reductase 146480-35-5, Gelatinase A
165245-96-5, P38 MAP kinase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)
IT 9032-20-6, NAD(P)H:menadione oxidoreductase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gene WDNM2 for; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in

relation to chronic **heart** failure)
IT 64885-96-7, DNA primase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p58 subunit; differentially expressed genes in L6 rat skeletal muscle myoblasts after incubation with inflammatory cytokines in relation to chronic **heart** failure)

L20 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:620095 CAPLUS
DOCUMENT NUMBER: 132:132974
TITLE: Genomic organization and embryonic expression of the mouse fibroblast growth factor 9 gene
AUTHOR(S): Colvin, Jennifer S.; Feldman, Benjamin; Nadeau, Joseph H.; Goldfarb, Mitchell; Ornitz, David M.
CORPORATE SOURCE: Department of Molecular Biology and Pharmacology, Washington University School of Medicine, St. Louis, MO, 63110, USA
SOURCE: Dev. Dyn. (1999), 216(1), 72-88
CODEN: DEDYEI; ISSN: 1058-8388
PUBLISHER: Wiley-Liss, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Fibroblast growth factor** 9 (**FGF9**), originally cloned as glial-activating factor from human glioma cells, is expressed in adult rat brain and kidney. Here the authors report the chromosomal localization, genomic organization, and embryonic expression pattern of the mouse **Fgf9** gene. **Fgf9** maps to chromosome 14 near the Ctla6 locus. The gene spans more than 34 kb and contains three exons and two introns. Translation initiation occurs in exon 1, and translation termination occurs in exon 3. **Fgf9** RNA was detected during mouse embryogenesis in several tissues in which **Fgf** gene expression has not been previously described, including intermediate mesoderm of late-stage gastrulation, ventricular myocardium, lung pleura, **skeletal myoblasts** in the early limb bud, spinal cord motor neurons, olfactory bulb, and gut lumenal epithelium. **Fgf9** is coexpressed with other **Fgf** genes in some **skeletal myoblasts**, in limb apical ectoderm, in craniofacial ectoderm, and in the retina, inner ear, and tooth bud.
REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB **Fibroblast growth factor** 9 (**FGF9**), originally cloned as glial-activating factor from human glioma cells, is expressed in adult rat brain and kidney. Here the authors report the chromosomal localization, genomic organization, and embryonic expression pattern of the mouse **Fgf9** gene. **Fgf9** maps to chromosome 14 near the Ctla6 locus. The gene spans more than 34 kb and contains three exons and two introns. Translation initiation occurs in exon 1, and translation termination occurs in exon 3. **Fgf9** RNA was detected during mouse embryogenesis in several tissues in which **Fgf** gene expression has not been previously described, including intermediate mesoderm of late-stage gastrulation, ventricular myocardium, lung pleura, **skeletal myoblasts** in the early limb bud, spinal cord motor neurons, olfactory bulb, and gut lumenal epithelium. **Fgf9** is coexpressed with other **Fgf** genes in some **skeletal myoblasts**, in limb apical ectoderm, in craniofacial ectoderm, and in the retina, inner ear, and tooth bud.
IT **Heart**
(ventricle, expression during embryogenesis; genomic organization and embryonic expression of mouse fibroblast growth factor 9 gene)

L20 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:599240 CAPLUS
DOCUMENT NUMBER: 127:185851
TITLE: Expression of a protein in myocardium by injection of a gene
INVENTOR(S): Leiden, Jeffrey M.; Barr, Eliay
PATENT ASSIGNEE(S): Regents of the University of Michigan, USA
SOURCE: U.S., 15 pp. Cont. of U. S. Ser. No. 789,983, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 5661133 | A | 19970826 | US 1995-376521 | 19950123 |
| US 5661133 | B1 | 19990601 | | |
| US 6316419 | B1 | 20011113 | US 1997-909496 | 19970812 |
| PRIORITY APPLN. INFO.: | | | US 1991-789983 B1 | 19911112 |
| | | | US 1995-376521 A1 | 19950123 |

AB A method is disclosed for expressing a protein which comprises transforming **skeletal myoblasts** or **cardiac** myocytes with a DNA sequence comprising a DNA segment encoding a selected gene downstream of the Rous sarcoma virus long terminal repeat or the expression sequence in pRSV, and implanting the **skeletal myoblasts** or **cardiac** myocytes into a recipient which then expresses a physiol. effective level of said protein. The method of the invention is useful for gene therapy. Rats were injected with a plasmid encoding human **fibroblast growth factor** 5 (hFGF-5) in an attempt to stimulate angiogenesis or collateral blood flow in the adult rat **heart**. Direct injection of the hFGF-5 expression vector stimulated collateral vessel formation in areas of the injected myocardium.
AB A method is disclosed for expressing a protein which comprises transforming **skeletal myoblasts** or **cardiac** myocytes with a DNA sequence comprising a DNA segment encoding a selected gene downstream of the Rous sarcoma virus long terminal repeat or the expression sequence in pRSV, and implanting the **skeletal myoblasts** or **cardiac** myocytes into a recipient which then expresses a physiol. effective level of said protein. The method of the invention is useful for gene therapy. Rats were injected with a plasmid encoding human **fibroblast growth factor** 5 (hFGF-5) in an attempt to stimulate angiogenesis or collateral blood flow in the adult rat **heart**. Direct injection of the hFGF-5 expression vector stimulated collateral vessel formation in areas of the injected myocardium.
ST protein expression myocardium gene therapy; skeletal myoblast gene therapy; **heart** myocyte gene therapy
IT Angiogenesis
(FGF-5 stimulation of angiogenesis in rat **heart**)
IT Gene therapy

**Heart**
Myocyte (**heart**)
(protein expression in myocardium by injection of gene)
IT Ventricle (**heart**)
(ventricular wall; protein expression in myocardium by injection of gene)
IT 129653-64-1, Fibroblast growth factor 5
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(FGF-5 stimulation of angiogenesis in rat **heart**)

L20 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:797460 CAPLUS
DOCUMENT NUMBER: 123:196046
TITLE: Myocardial grafts and cellular compositions useful for same
INVENTOR(S): Field, Loren J.
PATENT ASSIGNEE(S): Indiana University Foundation, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9514079 | A1 | 19950526 | WO 1994-US13141 | 19941116 |
| W: AU, CA, JP | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| US 5602301 | A | 19970211 | US 1993-153664 | 19931116 |
| AU 9510976 | A1 | 19950606 | AU 1995-10976 | 19941116 |
| AU 688427 | B2 | 19980312 | | |
| EP 729506 | A1 | 19960904 | EP 1995-901911 | 19941116 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| JP 09505471 | T2 | 19970603 | JP 1994-514553 | 19941116 |
| US 5733727 | A | 19980331 | US 1995-477783 | 19950607 |
| US 6015671 | A | 20000118 | US 1997-976278 | 19971121 |
| AU 9852141 | A1 | 19980319 | AU 1998-52141 | 19980119 |
| AU 697666 | B2 | 19981015 | | |
| US 2001038837 | A1 | 20011108 | US 2001-878011 | 20010608 |

PRIORITY APPLN. INFO.: US 1993-153664 A 19931116
WO 1994-US13141 W 19941116
US 1995-477783 A1 19950607
US 1997-976278 A1 19971121
US 1999-441315 A1 19991116

AB Non-tumorigenic **skeletal myoblasts** or cardiomyocytes contg. recombinant mol. (proteins) or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts. In example, stable fetal cardiomyocytes, s.c. tumor-derived AT-1 cardiomyocytes and undifferentiated C2C12 myoblast cells were generated for stable grafts in syngeneic myocardium. Transgenic C2C12 myoblasts contg. **TGF**-.beta.1 cDNA were prepd. for grafts.
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IT **Heart**
Mammal
Myoblast
(non-tumorigenic skeletal myoblasts or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)
IT **Heart**
(transplant, non-tumorigenic skeletal myoblasts or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)
IT Animal growth regulators
RL: BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**.beta.1-transforming growth factors**, non-tumorigenic **skeletal myoblasts** or cardiomyocytes contg. recombinant proteins or transfected embryonic stem cells contg. marker gene for myocardial grafts in mammal, and methods useful in obtaining the grafts)

L20 ANSWER 6 OF 12 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 96081977 MEDLINE
DOCUMENT NUMBER: 96081977 PubMed ID: 7499435
TITLE: Conservation of ligand specificity between the mammalian and amphibian fibroblast growth factor receptors.
AUTHOR: Patrie K M; Kudla A J; Olwin B B; Chiu I M
CORPORATE SOURCE: Molecular, Cellular, and Developmental Biology Program, Ohio State University, Davis Medical Research Center, Columbus 43210, USA.
CONTRACT NUMBER: R01AR39467 (NIAMS)
R01CA45611 (NCI)
R01DK47506 (NIDDK)
+
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1995 Dec 1) 270 (48) 29018-24.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199601
ENTRY DATE: Entered STN: 19960217
Last Updated on STN: 19960217
Entered Medline: 19960118

AB We have previously cloned and sequenced a newt keratinocyte growth factor receptor (KGFR) cDNA which exhibited a unique spatial and temporal expression pattern in the regenerating newt limb. In this report, we further characterize the biochemical and functional properties of this newt KGFR. A stable Chinese hamster ovary transfectant overexpressing the

newt KGFR was capable of binding both 125I-**fibroblast growth factor**-1 (**FGF**-1) and 125I-**FGF**-7 but not 125I-**FGF**-2, indistinguishable from the human KGFR. Scatchard analysis and cross-linking studies further support the conclusion that **FGF**-1 and **FGF**-7 are the ligands for the newt KGFR. In addition to their ability to bind to **FGFs**, both the human and the newt KGFR are also capable of repressing differentiation in mouse MM14 myoblasts. MM14 cells express **FGFR1** and are repressed from differentiation by **FGF**-1, **FGF**-2, and **FGF**-4 but not **FGF**-7. Co-transfection of MM14 cells with either a human or newt KGFR expression construct conferred a response to **FGF**-7 as determined by a human alpha-**cardiac** actin/luciferase reporter construct. The response to **FGF**-7 was similar to the endogenous **FGF** response as **FGF**-7 prevented MM14 myoblasts from undergoing terminal differentiation. Thus, both the human and the newt KGFRs transduce signals similar to those transduced via the endogenous mouse **FGFR1**. Together these data indicate that this newly isolated newt KGFR is a functional receptor as it binds two **FGF** family members with high affinity and mediates signaling in **skeletal** muscle **myoblasts**. Because the binding pattern of the newt KGFR is similar to the pattern observed for its mammalian counterpart, it emphasizes the strict conservation that this ligand/receptor system has undergone through evolution.

AB . . . properties of this newt KGFR. A stable Chinese hamster ovary transfectant overexpressing the newt KGFR was capable of binding both 125I-**fibroblast growth factor**-1 (**FGF**-1) and 125I-**FGF**-7 but not 125I-**FGF**-2, indistinguishable from the human KGFR. Scatchard analysis and cross-linking studies further support the conclusion that **FGF**-1 and **FGF**-7 are the ligands for the newt KGFR. In addition to their ability to bind to **FGFs**, both the human and the newt KGFR are also capable of repressing differentiation in mouse MM14 myoblasts. MM14 cells express **FGFR1** and are repressed from differentiation by **FGF**-1, **FGF**-2, and **FGF**-4 but not **FGF**-7. Co-transfection of MM14 cells with either a human or newt KGFR expression construct conferred a response to **FGF**-7 as determined by a human alpha-**cardiac** actin/luciferase reporter construct. The response to **FGF**-7 was similar to the endogenous **FGF** response as **FGF**-7 prevented MM14 myoblasts from undergoing terminal differentiation. Thus, both the human and the newt KGFRs transduce signals similar to those transduced via the endogenous mouse **FGFR1**. Together these data indicate that this newly isolated newt KGFR is a functional receptor as it binds two **FGF** family members with high affinity and mediates signaling in **skeletal** muscle **myoblasts**. Because the binding pattern of the newt KGFR is similar to the pattern observed for its mammalian counterpart, it emphasizes. . .

L20 ANSWER 7 OF 12 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 95114096 MEDLINE
DOCUMENT NUMBER: 95114096 PubMed ID: 7529257
TITLE: Targeted expression of transforming growth factor-beta 1 in intracardiac grafts promotes vascular endothelial cell DNA synthesis.
AUTHOR: Koh G Y; Kim S J; Klug M G; Park K; Soonpaa M H; Field L J
CORPORATE SOURCE: Krannert Institute of Cardiology, Indiana University School of Medicine, Indianapolis 46202-4800.
CONTRACT NUMBER: HL-45453 (NHLBI)
SOURCE: JOURNAL OF CLINICAL INVESTIGATION, (1995 Jan) 95 (1) 114-21.
Journal code: HS7; 7802877. ISSN: 0021-9738.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199502
ENTRY DATE: Entered STN: 19950217
Last Updated on STN: 19980206
Entered Medline: 19950209

AB Intracardiac grafts comprised of genetically modified **skeletal myoblasts** were assessed for their ability to effect long-term delivery of recombinant **transforming growth factor-beta** (**TGF**-beta) to the **heart**. C2C12 myoblasts were stably transfected with a construct comprised of an inducible metallothionein promoter fused to a modified **TGF**-beta 1 cDNA. When cultured in medium supplemented with zinc sulfate, cells carrying this transgene constitutively secrete active **TGF**-beta 1. These genetically modified myoblasts were used to produce intracardiac grafts in syngeneic C3Heb/PeJ hosts. Viable grafts were observed as long as three months after implantation, and immunohistological analyses of mice maintained on water supplemented with zinc sulfate revealed the presence of grafted cells which stably expressed **TGF**-beta 1. Regions of apparent neovascularization, as evidenced by tritiated thymidine incorporation into vascular endothelial cells, were observed in the myocardium which bordered grafts expressing **TGF**-beta 1. The extent of vascular endothelial cell DNA synthesis could be modulated by altering dietary zinc. Similar effects on the vascular endothelial cells were not seen in mice with grafts comprised of nontransfected cells. This study indicates that genetically modified **skeletal myoblast** grafts can be used to effect the local, long-term delivery of recombinant molecules to the **heart**.

AB Intracardiac grafts comprised of genetically modified **skeletal myoblasts** were assessed for their ability to effect long-term delivery of recombinant **transforming growth factor-beta** (**TGF**-beta) to the **heart**. C2C12 myoblasts were stably transfected with a construct comprised of an inducible metallothionein promoter fused to a modified **TGF**-beta 1 cDNA. When cultured in medium supplemented with zinc sulfate, cells carrying this transgene constitutively secrete active **TGF**-beta 1. These genetically modified myoblasts were used to produce intracardiac grafts in syngeneic C3Heb/PeJ hosts. Viable grafts were observed as. . . immunohistological analyses of mice maintained on water supplemented with zinc sulfate revealed the presence of grafted cells which stably expressed **TGF**-beta 1. Regions of apparent neovascularization, as evidenced by tritiated thymidine incorporation into vascular endothelial cells, were observed in the myocardium which bordered grafts expressing **TGF**-beta 1. The extent of vascular endothelial cell DNA synthesis could be modulated by altering dietary zinc. Similar effects on the. . . vascular endothelial cells were not seen in mice with grafts comprised of nontransfected cells. This study indicates that genetically modified **skeletal myoblast** grafts can be used to effect the local, long-term delivery of recombinant molecules to the **heart**.

CT Check Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

**Cardiac Surgical Procedures**
Drug Delivery Systems
Drug Therapy: MT, methods
*Endothelium, Vascular: DE, drug effects
*Gene Therapy: MT, methods
***Heart: DE, drug effects**
Metallothionein: BI, biosynthesis
Metallothionein: GE, genetics
Mice
Mice, Inbred C3H
*Muscle, Skeletal: TR, transplantation
Neovascularization, Pathologic: CI,. . .

L20 ANSWER 8 OF 12 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 91260730 MEDLINE
DOCUMENT NUMBER: 91260730 PubMed ID: 1710772
TITLE: Secretion and transcriptional regulation of transforming growth factor-beta 3 during myogenesis.
AUTHOR: Lafyatis R; Lechleider R; Roberts A B; Sporn M B
CORPORATE SOURCE: Laboratory of Chemoprevention, National Cancer Institute, Bethesda, Maryland 20892.
SOURCE: MOLECULAR AND CELLULAR BIOLOGY, (1991 Jul) 11 (7) 3795-803. Journal code: NGY; 8109087. ISSN: 0270-7306.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199107
ENTRY DATE: Entered STN: 19910802
Last Updated on STN: 19980206
Entered Medline: 19910717
AB **Transforming growth factor-beta** 3 (**TGF**-beta 3) mRNA is differentially expressed in developing and mature mouse tissues, including high-level expression in developing and adult **cardiac** tissue. We show now that **TGF**-beta 3 mRNA is also expressed highly in skeletal muscle as well as in the mouse **skeletal myoblast** cell line C2C12. We also show that C2C12 cells secrete **TGF**-beta 3, and that this **TGF**-beta is able to inhibit C2C12 myoblast fusion after activation. In order to begin to understand how the **TGF**-beta 3 promoter is regulated in specific tissues during development, we therefore studied the regulation of **TGF**-beta 3 during myoblast fusion. After fusion of C2C12 cells into myotubes, **TGF**-beta 3 mRNA levels increased eightfold as a result of increased **TGF**-beta 3 transcription. **TGF**-beta 3 transcriptional regulation was studied in myoblasts and myotubes by transfection of chimeric **TGF**-beta 3/CAT promoter plasmids. Chloramphenicol acetyltransferase (CAT) activity was stimulated in myoblasts by several upstream regions between -301 and -47 of the **TGF**-beta 3 promoter and by the **TGF**-beta 3 5' untranslated region. CAT activity directed by the **TGF**-beta 3 promoter in myotubes was stimulated by a distinct upstream region located between -499 and -221. Therefore, the high level of **TGF**-beta 3 mRNA expression in muscle cells appears to be dependent on multiple regulatory events during different stages of myogenesis.
AB **Transforming growth factor-beta** 3 (**TGF**-beta 3) mRNA is differentially expressed in developing and mature mouse tissues, including high-level expression in developing and adult **cardiac** tissue. We show now that **TGF**-beta 3 mRNA is also expressed highly in skeletal muscle as well as in the mouse **skeletal myoblast** cell line C2C12. We also show that C2C12 cells secrete **TGF**-beta 3, and that this **TGF**-beta is able to inhibit C2C12 myoblast fusion after activation. In order to begin to understand how the **TGF**-beta 3 promoter is regulated in specific tissues during development, we therefore studied the regulation of **TGF**-beta 3 during myoblast fusion. After fusion of C2C12 cells into myotubes, **TGF**-beta 3 mRNA levels increased eightfold as a result of increased **TGF**-beta 3 transcription. **TGF**-beta 3 transcriptional regulation was studied in myoblasts and myotubes by transfection of chimeric **TGF**-beta 3/CAT promoter plasmids. Chloramphenicol acetyltransferase (CAT) activity was stimulated in myoblasts by several upstream regions between -301 and -47 of the **TGF**-beta 3 promoter and by the **TGF**-beta 3 5' untranslated region. CAT activity directed by the **TGF**-beta 3 promoter in myotubes was stimulated by a distinct upstream region located between -499 and -221. Therefore, the high level of **TGF**-beta 3 mRNA expression in muscle cells appears to be dependent on multiple regulatory events during different stages of myogenesis.

L20 ANSWER 9 OF 12 MEDLINE
ACCESSION NUMBER: 91300935 MEDLINE
DOCUMENT NUMBER: 91300935 PubMed ID: 1712696
TITLE: TGF-beta 1 and fibroblast growth factors selectively up-regulate tissue-specific fetal genes in **cardiac** muscle cells.
AUTHOR: Parker T G; Chow K L; Schwartz R J; Schneider M D
CORPORATE SOURCE: Department of Medicine, Baylor College of Medicine, Houston, TX 77030-3498.
CONTRACT NUMBER: R01-HL39141 (NHLBI)
SOURCE: CIBA FOUNDATION SYMPOSIUM, (1991) 157 152-60; discussion 161-4.
Journal code: D7X; 0356636. ISSN: 0300-5208.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199108
ENTRY DATE: Entered STN: 19910908
Last Updated on STN: 19960129
Entered Medline: 19910820
AB **TGF**-beta 1, like basic and acidic **fibroblast growth factor** (**FGF**), inhibits differentiated gene expression in **skeletal myoblasts**. It potentiates **FGF**-beta 1 down-regulated expression of the alpha-myosin heavy chain gene and the sarcoplasmic reticulum calcium ATPase gene, yet up-regulated expression of the genes for beta-myosin heavy chain, atrial natriuretic factor, and both skeletal and smooth muscle alpha-actin-four transcripts associated with the embryonic **heart**. **TGF**-beta 1 did not affect **cardiac** alpha-actin gene expression. These responses resemble the generalized 'fetal' phenotype seen during hypertrophy triggered by a haemodynamic load. Chick skeletal and **cardiac** alpha-actin promoter-driven reported genes were transfected into neonatal rat **cardiac** myocytes. **TGF**-beta 1 stimulated skeletal alpha-actin transcription, but not

transcription from the **cardiac** alpha-actin promoter. Basic **FGF** produced the same results as **TGF**-beta 1, but acidic **FGF** suppressed expression of both alpha-actin genes; these results were true for purified and recombinant **FGFs**. Modulation of alpha-actin transcription by growth factors corresponded accurately to control of the endogenous genes. Three positive cis-acting elements were critical for skeletal alpha-actin transcription in **cardiac**, as well as skeletal, myocytes, particularly the downstream CCAAT box-associated repeat. Thus, **TGF**-beta 1 and **FGFs** selectively induce an ensemble of 'fetal' genes and differentially regulate alpha-actin transcription in **cardiac** muscle cells.

TI TGF-beta 1 and fibroblast growth factors selectively up-regulate tissue-specific fetal genes in **cardiac** muscle cells.

AB **TGF**-beta 1, like basic and acidic **fibroblast growth factor** (**FGF**), inhibits differentiated gene expression in **skeletal myoblasts**. It potentiates **FGF**-beta 1 down-regulated expression of the alpha-myosin heavy chain gene and the sarcoplasmic reticulum calcium ATPase gene, yet up-regulated expression of. . . genes for beta-myosin heavy chain, atrial natriuretic factor, and both skeletal and smooth muscle alpha-actin-four transcripts associated with the embryonic **heart** . **TGF**-beta 1 did not affect **cardiac** alpha-actin gene expression. These responses resemble the generalized 'fetal' phenotype seen during hypertrophy triggered by a haemodynamic load. Chick skeletal and **cardiac** alpha-actin promoter-driven reported genes were transfected into neonatal rat **cardiac** myocytes. **TGF** -beta 1 stimulated skeletal alpha-actin transcription, but not transcription from the **cardiac** alpha-actin promoter. Basic **FGF** produced the same results as **TGF**-beta 1, but acidic **FGF** suppressed expression of both alpha-actin genes; these results were true for purified and recombinant **FGFs**. Modulation of alpha-actin transcription by growth factors corresponded accurately to control of the endogenous genes. Three positive cis-acting elements were critical for skeletal alpha-actin transcription in **cardiac**, as well as skeletal, myocytes, particularly the downstream CCAAT box-associated repeat. Thus, **TGF**-beta 1 and **FGFs** selectively induce an ensemble of 'fetal' genes and differentially regulate alpha-actin transcription in **cardiac** muscle cells.

CT . . . Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
Actins: BI, biosynthesis
Actins: GE, genetics
Cell Division: DE, drug effects
**Fetal Heart: ME, metabolism**
*Fibroblast Growth Factor, Acidic: PD, pharmacology
*Fibroblast Growth Factor, Basic: PD, pharmacology
*Gene Expression Regulation: DE,. . .

L20 ANSWER 10 OF 12 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 90097919 MEDLINE
DOCUMENT NUMBER: 90097919 PubMed ID: 2601707
TITLE: A new myocyte-specific enhancer-binding factor that recognizes a conserved element associated with multiple muscle-specific genes.
AUTHOR: Gossett L A; Kelvin D J; Sternberg E A; Olson E N
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology, University of Texas, M.D. Anderson Cancer Center, Houston 77030.
CONTRACT NUMBER: AR 39849 (NIAMS)
CA-16672 (NCI)
SOURCE: MOLECULAR AND CELLULAR BIOLOGY, (1989 Nov) 9 (11) 5022-33.
Journal code: NGY; 8109087. ISSN: 0270-7306.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199002
ENTRY DATE: Entered STN: 19900328
Last Updated on STN: 19970203
Entered Medline: 19900202

AB Exposure of **skeletal myoblasts** to growth factor-deficient medium results in transcriptional activation of muscle-specific genes, including the muscle creatine kinase gene (mck). Tissue specificity, developmental regulation, and high-level expression of mck are conferred primarily by a muscle-specific enhancer located between base pairs (bp) -1350 and -1048 relative to the transcription initiation site (E. A. Sternberg, G. Spizz, W. M. Perry, D. Vizard, T. Weil, and E. N. Olson, Mol. Cell. Biol. 8:2896-2909, 1988). To begin to define the regulatory mechanisms that mediate the selective activation of the mck enhancer in differentiating muscle cells, we have further delimited the boundaries of this enhancer and analyzed its interactions with nuclear factors from a variety of myogenic and nonmyogenic cell types. Deletion mutagenesis showed that the region between 1,204 and 1,095 bp upstream of mck functions as a weak muscle-specific enhancer that is dependent on an adjacent enhancer element for strong activity. This adjacent activating element does not exhibit enhancer activity in single copy but acts as a strong enhancer when multimerized. Gel retardation assays combined with DNase I footprinting and diethyl pyrocarbonate interference showed that a nuclear factor from differentiated C2 myotubes and BC3H1 myocytes recognized a conserved A + T-rich sequence within the peripheral activating region. This myocyte-specific enhancer-binding factor, designated MEF-2, was undetectable in nuclear extracts from C2 or BC3H1 myoblasts or several nonmyogenic cell lines. MEF-2 was first detectable within 2 h after exposure of myoblasts to mitogen-deficient medium and increased in abundance for 24 to 48 h thereafter. The appearance of MEF-2 required ongoing protein synthesis and was prevented by **fibroblast growth factor** and type **beta transforming growth factor**, which block the induction of muscle-specific genes. A myoblast-specific factor that is down regulated within 4 h after removal of growth factors was also found to bind to the MEF-2 recognition site. A 10-bp sequence, which was shown by DNase I footprinting and diethyl pyrocarbonate interference to interact directly with MEF-2, was identified within the rat and human mck enhancers, the rat myosin light-chain (mlc)-1/3 enhancer, and the chicken **cardiac** mlc-2A promoter. Oligomers corresponding to the region of the mlc-1/3 enhancer, which encompasses this conserved sequence, bound MEF-2 and competed for its binding to the mck enhancer.(ABSTRACT TRUNCATED AT 400 WORDS)

AB Exposure of **skeletal myoblasts** to growth factor-deficient medium results in transcriptional activation of muscle-specific genes, including the muscle creatine kinase gene (mck). Tissue specificity,. . . in abundance for 24 to 48 h thereafter. The appearance of MEF-2 required ongoing protein synthesis and was prevented

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which block the induction of muscle-specific genes. A myoblast-specific
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MEF-2, was identified within the rat and human mck enhancers, the rat
myosin light-chain (mlc)-1/3 enhancer, and the chicken **cardiac**
mlc-2A promoter. Oligomers corresponding to the region of the mlc-1/3
enhancer, which encompasses this conserved sequence, bound MEF-2 and
competed. . .

L20 ANSWER 11 OF 12 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 90009059 MEDLINE
DOCUMENT NUMBER: 90009059 PubMed ID: 2677031
TITLE: Basic fibroblast growth factor in atria and ventricles of the vertebrate **heart**.
AUTHOR: Kardami E; Pandrich R R
CORPORATE SOURCE: St. Boniface General Hospital Research Centre, Division of Cardiovascular Sciences, Winnipeg, Manitoba, Canada.
SOURCE: JOURNAL OF CELL BIOLOGY, (1989 Oct) 109 (4 Pt 1) 1865-75.
Journal code: HMV; 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198911
ENTRY DATE: Entered STN: 19900328
Last Updated on STN: 19900328
Entered Medline: 19891102

AB Extracts from atrial and ventricular **heart** tissue of several species (chicken, rat, sheep, and cow) are strongly mitogenic for chicken **skeletal myoblasts**, with the highest apparent concentration of biological activity in the atrial extracts. Using several approaches (biological activity assay and biochemical and immunological analyses), we have established that (a) all **cardiac** extracts contain an 18,000-D peptide which is identified as basic **fibroblast growth factor** (bFGF) since it elutes from heparin-Sepharose columns at salt concentrations greater than 1.4 M and is recognized by bFGF-specific affinity-purified antibodies; (b) bFGF is more abundant in the atrial extracts in all species so examined; (c) avian **cardiac** tissue extracts contain the highest concentration of immunoreactive bFGF; and (d) avian ventricles contain a higher relative molecular mass (23,000-D) bFGF-like peptide which is absent from atrial extracts. Examination of frozen bovine **cardiac** tissue sections by indirect immunofluorescence using anti-bFGF antibodies shows bFGF-like reactivity associated with nuclei and intercalated discs of muscle fibers. There is substantial accumulation of bFGF around atrial but not ventricular myofibers, resulting most likely from more extensive endomysium in the atria. Blood vessels and single, nonmuscle, connective tissue cells react strongly with the anti-bFGF antibodies. Higher bFGF content and pericellular distribution in atrial muscles suggest a correlation with increased regenerative potential in this tissue. Distribution within the myofibers is intriguing, raising the possibility for an intimate and continuous involvement of bFGF-like components with normal myocardial function.

TI Basic fibroblast growth factor in atria and ventricles of the vertebrate **heart**.

AB Extracts from atrial and ventricular **heart** tissue of several species (chicken, rat, sheep, and cow) are strongly mitogenic for chicken **skeletal myoblasts**, with the highest apparent concentration of biological activity in the atrial extracts. Using several approaches (biological activity assay and biochemical and immunological analyses), we have established that (a) all **cardiac** extracts contain an 18,000-D peptide which is identified as basic **fibroblast growth factor** (bFGF) since it elutes from heparin-Sepharose columns at salt concentrations greater than 1.4 M and is recognized by bFGF-specific affinity-purified antibodies; (b) bFGF is more abundant in the atrial extracts in all species so examined; (c) avian **cardiac** tissue extracts contain the highest concentration of immunoreactive bFGF; and (d) avian ventricles contain a higher relative molecular mass (23,000-D) bFGF-like peptide which is absent from atrial extracts. Examination of frozen bovine **cardiac** tissue sections by indirect immunofluorescence using anti-bFGF antibodies shows bFGF-like reactivity associated with nuclei and intercalated discs of muscle fibers.. . .

CT . . .
Chromatography, Affinity
DNA Replication: DE, drug effects
*Fibroblast Growth Factor: AN, analysis
Fibroblast Growth Factor: PD, pharmacology
Fluorescent Antibody Technique
**Heart: PH, physiology**
**Heart Atrium: AN, analysis**
**Heart Atrium: CY, cytology**
**Heart Ventricle: AN, analysis**
**Heart Ventricle: CY, cytology**
Muscles: CY, cytology
Muscles: DE, drug effects
Myocardium: AN, analysis
Myocardium: CY, cytology
Organ Specificity
Rats
. . .

L20 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1989:206511 CAPLUS
DOCUMENT NUMBER: 110:206511
TITLE: Heparin-binding mitogen(s) in the **heart**; in search of origin and function
AUTHOR(S): Kardami, Elissavet; Pandrich, Robert R.
CORPORATE SOURCE: Res. Cent., St. Boniface Gen. Hosp., Winnipeg, MB, R2H 2A6, Can.
SOURCE: UCLA Symp. Mol. Cell. Biol., New Ser. (1989), 93(Cell. Mol. Biol. Muscle Dev.), 315-25
CODEN: USMBD6; ISSN: 0735-9543
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Exts. from rat **heart** tissue are highly mitogenic for a variety of cell types, including rabbit fetal chondrocytes and **skeletal myoblasts**. Ext. activity is a consequence of the presence of heparin-binding factor(s) in the **heart**. One of these factors was identified as basic **fibroblast growth factor** (bFGF), using bFGF specific antibodies. Biol. activity assays of the exts. indicate that heparin-binding factor(s) have an

apparent concn. which is highest in the atria and lowest in the left ventricle. The source of these factors in the **heart** is unknown; data from cell-conditioned media suggest that the myocytes may be secreting these factors in the **cardiac** milieu, particularly in the atria. These findings suggest a correlation between the less differentiated state and better regenerative ability of the atrial myocytes with local heparin-binding growth factor presence. In agreement with this hypothesis, bFGF can stimulate atrial or ventricular myocyte proliferation in vitro; furthermore the effect of bFGF is cancelled by simultaneous presence of **transforming growth factor-.beta.**, another factor which is found in many normal tissues, including the **heart**. Local growth factors therefore may be responsible for the regenerative properties of **cardiac** muscle.

TI Heparin-binding mitogen(s) in the **heart**; in search of origin and function

AB Exts. from rat **heart** tissue are highly mitogenic for a variety of cell types, including rabbit fetal chondrocytes and **skeletal myoblasts**. Ext. activity is a consequence of the presence of heparin-binding factor(s) in the **heart**. One of these factors was identified as basic **fibroblast growth factor** (bFGF), using bFGF specific antibodies. Biol. activity assays of the exts. indicate that heparin-binding factor(s) have an apparent concn. which is highest in the atria and lowest in the left ventricle. The source of these factors in the **heart** is unknown; data from cell-conditioned media suggest that the myocytes may be secreting these factors in the **cardiac** milieu, particularly in the atria. These findings suggest a correlation between the less differentiated state and better regenerative ability of the atrial myocytes with local heparin-binding growth factor presence. In agreement with this hypothesis, bFGF can stimulate atrial or ventricular myocyte proliferation in vitro; furthermore the effect of bFGF is cancelled by simultaneous presence of **transforming growth factor-.beta.**, another factor which is found in many normal tissues, including the **heart**. Local growth factors therefore may be responsible for the regenerative properties of **cardiac** muscle.

ST heparin binding growth factor **heart**

IT Cell division
Deoxyribonucleic acid formation
(by **heart** myocyte, heparin-binding growth factors effect on)

IT **Heart**
(regeneration of, heparin-binding growth factors in)

IT **Heart**, composition
(atrium, heparin-binding growth factors of, function and origin of)

IT Animal growth regulators
RL: BIOL (Biological study)
(heparin-binding growth factors, of **heart**, function and origin of)

IT **Heart**, composition
(ventricle, heparin-binding growth factors of, function and origin of)

IT Animal growth regulators
RL: BIOL (Biological study)
(.beta.-transforming growth factors, **heart** ventricle myocyte proliferation response to basic fibroblast growth factor inhibition by)

IT 106096-93-9, Basic fibroblast growth factor
RL: BIOL (Biological study)
(heparin-binding growth factors of **heart** in relation to)

```
=> dis his

     (FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1          225 S EDGE A?/AU
L2            7 S L1 AND MYOBLAST
L3            5 DUP REM L2 (2 DUPLICATES REMOVED)
L4         1946 S SKELET? (3N) MYOBLAST?
L5          123 S L4 (10N) FIBROBLAST?
L6           56 DUP REM L5 (67 DUPLICATES REMOVED)
L7            5 S L6 AND TRANSPLANT?
L8            5 S L6 AND (TRANSPLANT? OR GRAFT?)
L9            0 S L6 (P) ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L10           3 S L6 AND LAMININ
L11           1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12           4 S L6 AND COLLAGEN
L13        1946 S L4 OR L11 OR L10
L14           6 S L12 OR L11 OR L10
L15           6 DUP REM L14 (0 DUPLICATES REMOVED)
L16          34 S L6 AND CULTUR?
L17           1 S L16 AND (IN (1N)VITRO)
L18         196 S L4 (P)  ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (
L19          27 S L18 AND (CARDIAC OR HEART)
L20          12 DUP REM L19 (15 DUPLICATES REMOVED)

=> s l4 (P) ((GATA4 or GATA6 or GATA?)
UNMATCHED LEFT PARENTHESIS 'P) ((GATA4'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s l4 (P) ((GATA4 or GATA6 or GATA?))
L21           4 L4 (P) ((GATA4 OR GATA6 OR GATA?))

=> dup rem l21
PROCESSING COMPLETED FOR L21
L22           1 DUP REM L21 (3 DUPLICATES REMOVED)

=> dis l22 ibib abs kwic

L22  ANSWER 1 OF 1     MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:   96394366     MEDLINE
DOCUMENT NUMBER:    96394366   PubMed ID: 8798472
TITLE:              Identification and characterization of the cell
                    type-specific and developmentally regulated alpha7 integrin
                    gene promoter.
AUTHOR:             Ziober B L; Kramer R H
CORPORATE SOURCE:   Department of Stomatology, University of California, San
                    Francisco, California 94143-0512, USA.
CONTRACT NUMBER:    CA51884 (NCI)
                    DE10306 (NIDCR)
                    DE10564 (NIDCR)
                    +
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SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Sep 13) 271 (37) 22915-22.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U60419
ENTRY MONTH: 199611
ENTRY DATE: Entered STN: 19961219
Last Updated on STN: 20000303
Entered Medline: 19961107

AB Expression of alpha7 is mainly confined to skeletal and cardiac muscle in which it appears to be the major laminin-binding integrin. When myoblasts differentiate to myotubes, alpha7 mRNA and protein expression is up-regulated. To explore the mechanisms involved in the tissue-specific and developmentally regulated expression of alpha7, we isolated and characterized a genomic clone containing approximately 2.8 kilobase pairs (kb) of the 5'-flanking region of the murine alpha7 gene. The 5'-flanking region lacks both TATA and CCAAT boxes but contains five putative Sp1 binding sites located in a CpG island. Two transcription start sites, located near an initiator-like sequence, are 176 and 170 base pairs upstream of the translation start site. There are numerous binding sites for developmental and cell type-specific transcription factors, including AP-1, AP-2, **GATA**, and several AT-rich sites. There are also eight consensus E-boxes that bind the basic helix-loop-helix family of muscle-specific transcription factors. The approximately 2.8-kb 5'-flanking region was an active promoter in C2C12 **skeletal myoblasts** and exhibited increased expression upon conversion to myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma epithelial cell line that does not express alpha7. Deletion analysis identified both positive and negative regulatory elements within the approximately 2.8-kb fragment. In 10T1/2 fibroblasts the approximately 2.8-kb alpha7 promoter was trans-activated by the myogenic basic helix-loop-helix proteins myogenin and MyoD but not by MRF4 and myf5. These results suggest that muscle-specific transcription factors play a role in regulating the cell-type expression of the alpha7 gene during development.

AB . . . of the translation start site. There are numerous binding sites for developmental and cell type-specific transcription factors, including AP-1, AP-2, **GATA**, and several AT-rich sites. There are also eight consensus E-boxes that bind the basic helix-loop-helix family of muscle-specific transcription factors. The approximately 2.8-kb 5'-flanking region was an active promoter in C2C12 **skeletal myoblasts** and exhibited increased expression upon conversion to myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma epithelial cell. . .

=> dis his

(FILE 'HOME' ENTERED AT 14:38:46 ON 02 MAR 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 14:38:58 ON 02 MAR 2002
L1 225 S EDGE A?/AU
L2 7 S L1 AND MYOBLAST
L3 5 DUP REM L2 (2 DUPLICATES REMOVED)
L4 1946 S SKELET? (3N) MYOBLAST?
L5 123 S L4 (10N) FIBROBLAST?
L6 56 DUP REM L5 (67 DUPLICATES REMOVED)
L7 5 S L6 AND TRANSPLANT?
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L11 1 S L6 AND ((EGF) OR (EPIDERMAL (1N) GROWTH (1N) FACTOR) )
L12 4 S L6 AND COLLAGEN
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L15 6 DUP REM L14 (0 DUPLICATES REMOVED)
L16 34 S L6 AND CULTUR?
L17 1 S L16 AND (IN (1N)VITRO)
L18 196 S L4 (P) ((FGF?) OR (FIBROBLAST (1N) GROWTH (1N) FACTOR) OR (
L19 27 S L18 AND (CARDIAC OR HEART)
L20 12 DUP REM L19 (15 DUPLICATES REMOVED)
L21 4 S L4 (P) ((GATA4 OR GATA6 OR GATA?))
L22 1 DUP REM L21 (3 DUPLICATES REMOVED)

=> end
ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 132.69 | 132.84 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -6.20 | -6.20 |

STN INTERNATIONAL LOGOFF AT 15:02:47 ON 02 MAR 2002

Connection closed by remote host

Connecting via Winsock to STN

Trying 3106016892...Open

Welcome to STN International! Enter x:x
LOGINID:ssspta1644axd
PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 Sep 17 IMSworld Pharmaceutical Company Directory name change to PHARMASEARCH
NEWS 3 Oct 09 Korean abstracts now included in Derwent World Patents Index
NEWS 4 Oct 09 Number of Derwent World Patents Index updates increased
NEWS 5 Oct 15 Calculated properties now in the REGISTRY/ZREGISTRY File

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 NEWS  6  Oct 22  Over 1 million reactions added to CASREACT
 NEWS  7  Oct 22  DGENE GETSIM has been improved
 NEWS  8  Oct 29  AAASD no longer available
 NEWS  9  Nov 19  New Search Capabilities  USPATFULL and USPAT2
 NEWS 10  Nov 19  TOXCENTER(SM) - new toxicology file now available on STN
 NEWS 11  Nov 29  COPPERLIT now available on STN
 NEWS 12  Nov 29  DWPI revisions to NTIS and US Provisional Numbers
 NEWS 13  Nov 30  Files VETU and VETB to have open access
 NEWS 14  Dec 10  WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
 NEWS 15  Dec 10  DGENE BLAST Homology Search
 NEWS 16  Dec 17  WELDASEARCH now available on STN
 NEWS 17  Dec 17  STANDARDS now available on STN
 NEWS 18  Dec 17  New fields for DPCI
 NEWS 19  Dec 19  CAS Roles modified
 NEWS 20  Dec 19  1907-1946 data and page images added to CA and CAplus
 NEWS 21  Jan 25  BLAST(R) searching in REGISTRY available in STN on the Web
 NEWS 22  Jan 25  Searching with the P indicator for Preparations
 NEWS 23  Jan 29  FSTA has been reloaded and moves to weekly updates
 NEWS 24  Feb 01  DKILIT now produced by FIZ Karlsruhe and has a new update
                  frequency
 NEWS 25  Feb 19  Access via Tymnet and SprintNet Eliminated Effective 3/31/02
 NEWS 26  Mar 08  Gene Names now available in BIOSIS

 NEWS EXPRESS  February 1 CURRENT WINDOWS VERSION IS V6.0d,
               CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
               AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
 NEWS HOURS    STN Operating Hours Plus Help Desk Availability
 NEWS INTER    General Internet Information
 NEWS LOGIN    Welcome Banner and News Items
 NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
 NEWS WWW      CAS World Wide Web Site (general information)

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specific topic.

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FILE 'HOME' ENTERED AT 08:29:53 ON 22 MAR 2002

=> file medline caplus embase biosis
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.15       0.15

FILE 'MEDLINE' ENTERED AT 08:30:06 ON 22 MAR 2002

FILE 'CAPLUS' ENTERED AT 08:30:06 ON 22 MAR 2002
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FILE 'BIOSIS' ENTERED AT 08:30:06 ON 22 MAR 2002
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=> s Edge A?/au
L1          225 EDGE A?/AU

=> sl1 and cardiac
SL1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 and cardiac
L2            5 L1 AND CARDIAC

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3            3 DUP REM L2 (2 DUPLICATES REMOVED)

=> dis l3 1-3 ibib abs

L3   ANSWER 1 OF 3  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:        2001:73649  CAPLUS
TITLE:                   Muscle cells and their use in cardiac repair
INVENTOR(S):             Edge,  Albert
PATENT ASSIGNEE(S):      Diacrin, Inc., USA
SOURCE:                  PCT Int. Appl.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.       KIND  DATE           APPLICATION NO.  DATE
     ---------------  ----  --------       ---------------  --------
     WO 2001007568     A2   20010201       WO 2000-US20129  20000724
     WO 2001007568     A3   20010809
         W:  AU, CA, JP
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE
PRIORITY APPLN. INFO.:                  US 1999-145849P  P  19990723
AB   Muscle cells and methods for using the muscle cells are provided.  In one
     embodiment, the invention provides transplantable skeletal muscle cell
     compositions and their methods of use.  In one embodiment, the muscle
     cells can be transplanted into patients having disorders characterized by
     insufficient cardiac function, e.g., congestive heart failure,
     in a subject by administering the skeletal myoblasts to the subject.  The
     muscle cells can be autologous, allogeneic, or xenogeneic to the
     recipient.
```

L3 ANSWER 2 OF 3 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001265854 MEDLINE
DOCUMENT NUMBER: 21193152 PubMed ID: 11294813
TITLE: Cell therapy attenuates deleterious ventricular remodeling and improves **cardiac** performance after myocardial infarction.
AUTHOR: Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531
AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal myoblasts would (1) result in viable myoblast implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) myoblasts were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo **cardiac** function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of myoblast graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal myoblasts form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic myoblast implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.

L3 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:112448 BIOSIS
DOCUMENT NUMBER: PREV200100112448
TITLE: Skeletal myoblast implantation attenuates post-MI ventricular remodeling and improves **cardiac** performance.
AUTHOR(S): Jain, Mohit (1); Dersimonian, Harout; Brenner, Daniel A.; Ngoy, Soeun; Teller, Paige; **Edge, Albert Sb.**; Zawadzka, Agatha; Wetzel, Kristie; Sawyer, Douglas B.; Colucci, Wilson S.; Apstein, Carl S.; Liao, Ronglih
CORPORATE SOURCE: (1) Boston Univ Sch of Medicine, Boston, MA USA
SOURCE: Circulation, (October 31, 2000) Vol. 102, No. 18 Supplement, pp. II.357. print.
Meeting Info.: Abstracts from Scientific Sessions 2000 New Orleans, Louisiana, USA November 12-15, 2000
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

=> s l1 and fiboblas?
L4 0 L1 AND FIBOBLAS?

=> s l1 and fibroblas?
L5 1 L1 AND FIBROBLAS?

=> dis l1 ibib bas
'BAS' IS NOT A VALID FORMAT
In a multifile environment, a format can only be used if it is valid in at least one of the files. Refer to file specific help messages or the STNGUIDE file for information on formats available in individual files.
REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):end

=> dis l1 ibib abs

L1 ANSWER 1 OF 225 MEDLINE
ACCESSION NUMBER: 2001265854 MEDLINE
DOCUMENT NUMBER: 21193152 PubMed ID: 11294813
TITLE: Cell therapy attenuates deleterious ventricular remodeling and improves cardiac performance after myocardial infarction.
AUTHOR: Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R
CORPORATE SOURCE: Cardiac Muscle Research Laboratory, Boston University School of Medicine, Boston, Massachusetts, USA.
SOURCE: CIRCULATION, (2001 Apr 10) 103 (14) 1920-7.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531
AB BACKGROUND: Myocardial infarction (MI) promotes deleterious remodeling of the myocardium, resulting in ventricular dilation and pump dysfunction. We examined whether supplementing infarcted myocardium with skeletal myoblasts would (1) result in viable myoblast implants, (2) attenuate deleterious remodeling, and (3) enhance in vivo and ex vivo contractile performance. METHODS AND RESULTS: Experimental MI was induced by 1-hour

coronary ligation followed by reperfusion in adult male Lewis rats. One week after MI, 10(6) myoblasts were injected directly into the infarct region. Three groups of animals were studied at 3 and 6 weeks after cell therapy: noninfarcted control (control), MI plus sham injection (MI), and MI plus cell injection (MI+cell). In vivo cardiac function was assessed by maximum exercise capacity testing and ex vivo function was determined by pressure-volume curves obtained from isolated, red cell-perfused, balloon-in-left ventricle (LV) hearts. MI and MI+cell hearts had indistinguishable infarct sizes of approximately 30% of the LV. At 3 and 6 weeks after cell therapy, 92% (13 of 14) of MI+cell hearts showed evidence of myoblast graft survival. MI+cell hearts exhibited attenuation of global ventricular dilation and reduced septum-to-free wall diameter compared with MI hearts not receiving cell therapy. Furthermore, cell therapy improved both post-MI in vivo exercise capacity and ex vivo LV systolic pressures. CONCLUSIONS: Implanted skeletal myoblasts form viable grafts in infarcted myocardium, resulting in enhanced post-MI exercise capacity and contractile function and attenuated ventricular dilation. These data illustrate that syngeneic myoblast implantation after MI improves both in vivo and ex vivo indexes of global ventricular dysfunction and deleterious remodeling and suggests that cellular implantation may be beneficial after MI.

=> dis l1 kwic

L1 ANSWER 1 OF 225 MEDLINE
AU Jain M; DerSimonian H; Brenner D A; Ngoy S; Teller P; **Edge A S**; Zawadzka A; Wetzel K; Sawyer D B; Colucci W S; Apstein C S; Liao R

=> dis l5 kwic

L5 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS
IN **Edge, Albert S. B.**; Oettinger, Henry F.
IT **Fibroblast**
(cells lacking; novel swine MHC class I genes and uses thereof)

=> s fibroblast? (P) cardiac
L6 5245 FIBROBLAST? (P) CARDIAC

=> s fibroblast? (P) (cardiac (10N) transplant? or graft?)
L7 4444 FIBROBLAST? (P) (CARDIAC (10N) TRANSPLANT? OR GRAFT?)

=> s fibroblast? (P) (cardiac (10N) (transplant? or graft?))
L8 131 FIBROBLAST? (P) (CARDIAC (10N) (TRANSPLANT? OR GRAFT?))

=> dup rem l8
PROCESSING COMPLETED FOR L8
L9 49 DUP REM L8 (82 DUPLICATES REMOVED)

=> dis l9 1-49 ibib kwic

L9 ANSWER 1 OF 49 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2002092003 MEDLINE
DOCUMENT NUMBER: 21673711 PubMed ID: 11815438
TITLE: Electrophysiological modulation of cardiomyocytic tissue by transfected fibroblasts expressing potassium channels: a novel strategy to manipulate excitability.
AUTHOR: Feld Yair; Melamed-Frank Meira; Kehat Izhak; Tal Dror; Marom Shimon; Gepstein Lior
CORPORATE SOURCE: Cardiovascular Research Laboratory, Department of Physiology, Technion, Israel.
SOURCE: CIRCULATION, (2002 Jan 29) 105 (4) 522-9.
Journal code: 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
(EVALUATION STUDIES)
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200202
ENTRY DATE: Entered STN: 20020201
Last Updated on STN: 20020213
Entered Medline: 20020212
AB . . . the local electrophysiological properties of cardiac tissue. To examine the feasibility of this concept, we tested the hypothesis that transfected **fibroblasts** expressing the voltage-sensitive potassium channel Kv1.3 can modify the electrophysiological properties of cardiomyocytic cultures. METHODS AND RESULTS: A high-resolution multielectrode. . . technique was used to assess the electrophysiological and structural properties of primary cultures of neonatal rat ventricular myocytes. The transfected **fibroblasts**, added to the cardiomyocytic cultures, caused a significant effect on the conduction properties of the hybrid cultures. These changes were. . . appearance of multiple local conduction blocks. The location of all conduction blocks correlated with the spatial distribution of the transfected **fibroblasts** assessed by vital staining. All electrophysiological changes were reversed after the application of Charybdotoxin, a specific Kv1.3 blocker. In contrast, conduction remained uniform in the control hybrid cultures when nontransfected **fibroblasts** were used. CONCLUSIONS: Transfected **fibroblasts** are able to electrically couple with cardiac myocytes, causing a significant local and reversible modification of the tissue's electrophysiological properties. More broadly, this study suggests that transfected cellular **grafts** expressing various ionic channels may be used to modify **cardiac** excitability, providing a possible future novel cell therapy strategy.

L9 ANSWER 2 OF 49 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2002141926 IN-PROCESS
DOCUMENT NUMBER: 21848160 PubMed ID: 11859426
TITLE: Adenoviral transfer of a single donor-specific MHC class I gene to recipient bone marrow cells can induce specific immunological unresponsiveness in vivo.
AUTHOR: Fry J W; Morris P J; Wood K J
CORPORATE SOURCE: Nuffield Department of Surgery, University of Oxford, John Radcliffe Hospital, Oxford, UK.
SOURCE: GENE THERAPY, (2002 Feb) 9 (3) 220-6.
Journal code: 9421525. ISSN: 0969-7128.
PUB. COUNTRY: England: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: IN-PROCESS; NONINDEXED; Priority Journals

ENTRY DATE: Entered STN: 20020307
Last Updated on STN: 20020307
AB . . . to recipient tissue before transplantation as a means of inducing donor-specific immunological unresponsiveness. AdSV40K(b) was able to transduce both a **fibroblast** cell line and freshly isolated bone marrow cells (BMCs) resulting in cell surface expression of H2-K(b) protein. Intravenous infusion of AdSV40K(b)-transduced syngeneic CBA/Ca (H-2(k)) BMCs into CBA recipient mice treated with an anti-CD4 monoclonal antibody 27 days before **transplantation** of a fully MHC-mismatched, C57BL/10 (H-2K(b+)), **cardiac** allograft resulted in significant long-term **graft** survival when compared with mice receiving the same dose of syngeneic BMCs transduced with a control adenovirus, AdRSVbetagal. Despite the. . . MHC class I gene to recipient BMCs in combination with transient depletion of CD4(+) cells is sufficient to induce long-term **graft** survival of a fully allogeneic **cardiac graft**. In addition, detectable microchimerism is not a prerequisite for **graft** survival.

L9 ANSWER 3 OF 49 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2001574801 MEDLINE
DOCUMENT NUMBER: 21538784 PubMed ID: 11502737
TITLE: Control of myoblast proliferation with a synthetic ligand.
AUTHOR: Whitney M L; Otto K G; Blau C A; Reinecke H; Murry C E
CORPORATE SOURCE: Department of Bioengineering, University of Washington, Seattle, Washington 98195-7335, USA.
CONTRACT NUMBER: HL07312 (NHLBI)
K08HL03094 (NHLBI)
P01HL03174 (NHLBI)
R01HL61553 (NHLBI)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Nov 2) 276 (44) 41191-6.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011030
Last Updated on STN: 20020123
Entered Medline: 20011207
AB . . . control myoblast proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast** growth factor receptor-1 cytoplasmic domain. Mouse MM14 myoblasts were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected myoblasts proliferated in response to dimerizer (comparable with basic **fibroblast** growth factor (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked. . . from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast** growth factor receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in myoblasts. We hypothesize that in vivo administration of AP20187 following myoblast **grafting** may allow control over **graft** size and ultimately improve **cardiac** function.

L9 ANSWER 4 OF 49 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2001401292 MEDLINE
DOCUMENT NUMBER: 21348761 PubMed ID: 11455252
TITLE: Mast cells in acute and chronic rejection of rat cardiac allografts--a major source of basic fibroblast growth factor.
AUTHOR: Koskinen P K; Kovanen P T; Lindstedt K A; Lemstrom K B
CORPORATE SOURCE: Cardiopulmonary Research Group of the Transplantation Laboratory, University of Helsinki Central Hospital, P.O. Box 21 (Haartmaninkatu 3), FIN-00014, Helsinki, Finland.. Petri.Koskinen@Helsinki.fi
SOURCE: TRANSPLANTATION, (2001 Jun 27) 71 (12) 1741-7.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200108
ENTRY DATE: Entered STN: 20010813
Last Updated on STN: 20010813
Entered Medline: 20010809
AB . . . this study was to investigate the role of mast cells in the development of acute and chronic rejection in rat **cardiac** allografts. METHODS: In the acute rejection model, **transplant** recipients were not treated with immunosuppressants, and the grafts were removed 5 days after transplantation at the time of severe. . . and interstitial mast cells and the intensity of intimal thickening. The majority of mast cells showed positive immunoreactivity to basic **fibroblast** growth factor (bFGF). Macrophage bFGF expression was not so prominent, but macrophages were more frequent in numbers. Tumor necrosis factor-alpha. . .

L9 ANSWER 5 OF 49 MEDLINE
ACCESSION NUMBER: 2001387513 MEDLINE
DOCUMENT NUMBER: 21336969 PubMed ID: 11443589
TITLE: Statins as immunosuppressive agents.
AUTHOR: Kobashigawa J A
CORPORATE SOURCE: Division of Cardiology University of California at Los Angeles Medical Center 100 UCLA Medical Plaza, #630 Los Angeles, CA 90095.
SOURCE: LIVER TRANSPLANTATION, (2001 Jun) 7 (6) 559-61.
Journal code: DK0; 100909185. ISSN: 1527-6465.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200109
ENTRY DATE: Entered STN: 20011001
Last Updated on STN: 20011001
Entered Medline: 20010927
AB BACKGROUND: Coronary artery disease in the **transplanted** heart, also known as **cardiac** allograft vasculopathy, is one of the major causes of mortality late after heart transplantation. This accelerated form of atherosclerosis also. . . and that this in turn represses activation of T-lymphocytes and other cell types including primary human smooth muscle cells and **fibroblasts**, as well as in established cell lines such as ThP1, melanomas, and HeLa cells.

CONCLUSION: In addition to previous clinical. . .

L9 ANSWER 6 OF 49 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2001226294 MEDLINE
DOCUMENT NUMBER: 21112869 PubMed ID: 11157717
TITLE: Association of thrombospondin-1 and cardiac allograft vasculopathy in human cardiac allografts.
AUTHOR: Zhao X M; Hu Y; Miller G G; Mitchell R N; Libby P
CORPORATE SOURCE: Cardiovascular Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.
CONTRACT NUMBER: HL-43364 (NHLBI)
HL-53771 (NHLBI)
T32-HL-07604 (NHLBI)
SOURCE: CIRCULATION, (2001 Jan 30) 103 (4) 525-31.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200104
ENTRY DATE: Entered STN: 20010502
Last Updated on STN: 20010521
Entered Medline: 20010426
AB BACKGROUND: Despite the expression of angiogenic growth factors in **transplanted** hearts, neovessel formation appears scant. We therefore hypothesized that **cardiac** allografts contain endogenous inhibitors of angiogenesis. In particular, we tested the involvement in cardiac allografts of thrombospondin-1 (TSP-1), a matrix. . . in cardiac allografts, predominantly in cardiac myocytes and neointimal SMCs. In vitro experiments demonstrated that T cells expressed TSP-1, acidic **fibroblast** growth factor, and vascular endothelial cell growth factor on allogeneic stimulation. Cytokines known to be elevated in cardiac allografts (interleukin-1beta,. . .

L9 ANSWER 7 OF 49 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 2001242196 MEDLINE
DOCUMENT NUMBER: 21242865 PubMed ID: 11343976
TITLE: Failure to down-regulate intragraft cytokine mRNA expression shortly after clinical heart transplantation is associated with high incidence of acute rejection.
AUTHOR: de Groot-Kruseman H A; Baan C C; Loonen E H; Mol W M; Niesters H G; Maat A P; Balk A H; Weimar W
CORPORATE SOURCE: Department of Internal Medicine, University Hospital Rotterdam-Dijkzigt, Rotterdam, The Netherlands.. hadegroot@inwl.azr.nl
SOURCE: JOURNAL OF HEART AND LUNG TRANSPLANTATION, (2001 May) 20 (5) 503-10.
Journal code: A0Q; 9102703. ISSN: 1053-2498.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200107
ENTRY DATE: Entered STN: 20010723
Last Updated on STN: 20010723
Entered Medline: 20010719
AB . . . immunosuppression, and rejection. METHODS: We sampled endomyocardial biopsies at 30 minutes (EMB 0) and at 1 week (EMB 1) after **transplantation** from 20 **cardiac** allograft recipients. Intragraft monocyte chemoattractant protein (MCP-1) and basic **fibroblast** growth factor (bFGF) mRNA expression levels were quantitatively measured using competitive template Reverse-transcriptase polymerase chain reaction (RT-PCR). RESULTS: We measured. . .

L9 ANSWER 8 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:554470 CAPLUS
DOCUMENT NUMBER: 134:236130
TITLE: Altered expression of matrix metalloproteinases in pig-to-primate xenotransplanted hearts
AUTHOR(S): Tsukioka, K.; Suzuki, J.; Kawauchi, M.; Wada, Y.; Zhang, T.; Endoh, M.; Takayama, K.; Takamoto, S.; Isobe, M.; Amano, J.
CORPORATE SOURCE: Second Department of Surgery, Shinshu University, Nagano, Japan
SOURCE: Transplantation Proceedings (2000), 32(5), 996-998
CODEN: TRPPA8; ISSN: 0041-1345
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB A study was conducted to clarify the roles of matrix metalloproteinases (MMPs) and tissue inhibitors of metalloproteinases (TIMPs) in xenograft rejection by performing pig-to-monkey **cardiac** **transplantation** and subsequent immunohistochem. study. Findings indicated that both **fibroblasts** and smooth muscle cells in xenograft rejection are differentiated from immature mesenchymal cells. It was shown that altered balance of MMPs and TIMPs was induced in mesenchymal cells before morphol. changes became elicited and contributed to severe tissue remodeling and arterial degrdn. in delayed xenograft rejection (DXR).

L9 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 7
ACCESSION NUMBER: 2001:1467 CAPLUS
DOCUMENT NUMBER: 134:338793
TITLE: The cytoskeleton and related proteins in the human failing heart
AUTHOR(S): Kostin, Sawa; Hein, Stefan; Arnon, Ejal; Scholz, Dimitri; Schaper, Jutta
CORPORATE SOURCE: Max Planck Institute, Bad Nauheim, D-61231, Germany
SOURCE: Heart Failure Reviews (2000), 5(3), 271-280
CODEN: HFREFC; ISSN: 1382-4147
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB A review with 64 refs. In addn. to functional alterations, heart failure has a structural basis as well. This concerns all components of the cardiac myocytes as well as the extracellular space. Proteins of the cardiomyocyte can be subdivided in 5 different categories: (1) Contractile proteins including myosin, actin, tropomyosin and the troponins. (2) Sarcomeric skeleton: titin, myosin binding protein C, .alpha.-actinin,

myomesin, and M-protein. (3) True "cytoskeletal" proteins: tubulin, desmin and actin. (4) Membrane-assocd. proteins: dystrophin, spectrin, talin, vinculin, ankyrin and others. (5) Proteins of the intercalated disk: desmosomes consisting of desmoplakin, desmocollin, desmoglein and desmin; adherens junctions with N-cadherin, the catenins and vinculin, and gap junctions with connexin. Failing myocardium obtained from patients undergoing **cardiac transplantation** exhibits ultrastructural degeneration and an altered nucleus/cytoplasm relation. The contractile proteins and those of the sarcomeric skeleton, esp. titin, are downregulated, the cytoskeletal proteins desmin and tubulin and membrane-assocd. proteins such as vinculin and dystrophin are upregulated and those of the intercalated disk are irregularly arranged. Elevation of cytoskeletal proteins correlates well with diastolic and contractile dysfunction in these patients. The enlarged interstitial space contains fibrosis, i.e. accumulations of **fibroblasts** and extracellular matrix components, in addn. to macrophages and microvascular elements. Loss of the contractile machinery and related proteins such as titin and .alpha.-actinin may be the first and decisive event initiating an adaptive increase in cytoskeleton and membrane assocd. components. Fibrosis may be stimulated by subcellular degeneration. The hypothesis is put forward that all proteins of the different myocardial compartments contribute to the deterioration of cardiac function in heart failure.

L9 ANSWER 10 OF 49 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 2000062646 MEDLINE
DOCUMENT NUMBER: 20062646 PubMed ID: 10595950
TITLE: Longitudinal analysis of **fibroblast** growth factor expression after **transplantation** and association with severity of **cardiac** allograft vasculopathy.
AUTHOR: Miller G G; Davis S F; Atkinson J B; Chomsky D B; Pedroso P; Reddy V S; Drinkwater D C; Zhao X M; Pierson R N
CORPORATE SOURCE: Department of Medicine Vanderbilt University Medical School, Nashville, TN 37232-2605, USA.
CONTRACT NUMBER: RO1-HL-53771 (NHLBI)
SOURCE: CIRCULATION, (1999 Dec 14) 100 (24) 2396-9.
Journal code: DAW; 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20010521
Entered Medline: 19991227
TI Longitudinal analysis of **fibroblast** growth factor expression after **transplantation** and association with severity of **cardiac** allograft vasculopathy.

L9 ANSWER 11 OF 49 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 2000037693 MEDLINE
DOCUMENT NUMBER: 20037693 PubMed ID: 10573069
TITLE: Immunological characterization of anti-endothelial cell antibodies induced by cytomegalovirus infection.
AUTHOR: Toyoda M; Petrosian A; Jordan S C
CORPORATE SOURCE: Transplant Immunology Laboratory, Ahmanson Pediatric Center, Cedars-Sinai Medical Center/UCLA School of Medicine, Los Angeles, California 90048, USA.
CONTRACT NUMBER: 1U01-AI37313-01 (NIAID)
1U01-AI40129-01 (NIAID)
SOURCE: TRANSPLANTATION, (1999 Nov 15) 68 (9) 1311-8.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199912
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991202
AB . . . that the levels of anti-endothelial cell antibodies (AECA) determined by an enzyme immunoassay are elevated during cytomegalovirus (CMV) infection in **cardiac** and renal **transplant** recipients. In a separate study, high levels of AECA are associated with higher frequency of humoral allograft rejection (AR), chronic AR and lower 2 year allograft survival in **cardiac transplant** recipients. These results suggests that high levels of AECA produced during CMV infection may have a pathogenic role or be. . . and after CMV infection. AECA(+) plasma reacted with multiple antigens expressed not only on endothelial cells but also on human **fibroblasts**, keratinocytes, platelets (PLs), peripheral blood mononuclear cells (PBMCs), Raji cells and THP-1 cells. Each individual's AECA(+) plasma showed different patterns. . .

L9 ANSWER 12 OF 49 MEDLINE DUPLICATE 10
ACCESSION NUMBER: 1999436288 MEDLINE
DOCUMENT NUMBER: 99436288 PubMed ID: 10504639
TITLE: Fetal cell transplantation: a comparison of three cell types.
AUTHOR: Sakai T; Li R K; Weisel R D; Mickle D A; Jia Z Q; Tomita S; Kim E J; Yau T M
CORPORATE SOURCE: Division of Cardiovascular Surgery, Center for Cardiovascular Research, Toronto General Hospital, Toronto, Ontario, Canada.
SOURCE: JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1999 Oct) 118 (4) 715-24.
Journal code: K9J; 0376343. ISSN: 0022-5223.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991130
AB . . . heart function. The mechanism by which this occurs, however, has not been elucidated. To investigate possible mechanisms by which cell **transplantation** may improve heart function, we compared **cardiac** function after **transplantation** of 3 different fetal cell types: cardiomyocytes, smooth muscle cells (nonstriated muscle cells), and **fibroblasts** (noncontractile cells). METHODS: A left ventricular scar was created by cryoinjury in adult rats. Four weeks after injury, cultured fetal ventricular cardiomyocytes (n = 13), enteric smooth muscle cells (n = 10), skin **fibroblasts** (n = 10), or culture

medium (control, n = 15 total) were injected into the myocardial scar. All rats received. . . . an end-diastolic volume of 0.2 mL, developed pressures in cardiomyocytes group were significantly greater than smooth muscle cells and skin **fibroblasts** groups (cardiomyocytes, 134% +/- 22% of control; smooth muscle cells, 108% +/- 14% of control; skin **fibroblasts**, 106% +/- 17% of control; P =.0001), as were +dP/dt(max) (cardiomyocytes, 119% +/- 37% of control; smooth muscle cells, 98% +/- 18% of control; skin **fibroblasts**, 92% +/- 11% of control; P =. 0001) and -dP/dt(max) (cardiomyocytes, 126% +/- 29% of control; smooth muscle cells, 108% +/- 19% of control; skin **fibroblasts**, 99% +/- 16% control; P =.0001). CONCLUSIONS: Fetal cardiomyocytes transplanted into myocardial scar provided greater contractility and relaxation than fetal smooth muscle cells or fetal **fibroblasts**. The contractile and elastic properties of transplanted cells determine the degree of improvement in ventricular function achievable with cell transplantation.

L9 ANSWER 13 OF 49 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 1999334247 MEDLINE
DOCUMENT NUMBER: 99334247 PubMed ID: 10405775
TITLE: Inhibition of human cardiac fibroblast mitogenesis by blockade of mitogen-activated protein kinase and phosphatidylinositol 3-kinase.
AUTHOR: Hafizi S; Chester A H; Yacoub M H
CORPORATE SOURCE: Department of Cardiothoracic Surgery, Imperial College of Science, Technology and Medicine, Middlesex, United Kingdom.
SOURCE: CLINICAL AND EXPERIMENTAL PHARMACOLOGY AND PHYSIOLOGY, (1999 Jul) 26 (7) 511-3.
Journal code: DD8; 0425076. ISSN: 0305-1870.
PUB. COUNTRY: Australia
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199908
ENTRY DATE: Entered STN: 19990827
Last Updated on STN: 19990827
Entered Medline: 19990817
AB 1. Interstitial **fibroblast** proliferation is an elemental feature in the development of cardiac fibrosis. The effects of inhibitors of the intracellular signalling proteins,. . . kinase involved in the mitogen-activated protein kinase (MAPK) pathway and phosphatidylinositol 3-kinase (PI3-K), were tested on growth of cultured human **cardiac fibroblasts**. 2. **Cardiac fibroblasts** were isolated from **transplant** recipient myocardium and made quiescent by serum deprivation for 48 h. Cells were incubated for 24 h with the inhibitors. . . (20-24 h). 3. Both compounds markedly inhibited both basal and PDGF-stimulated increases in DNA synthesis in a concentration-dependent manner. Cardiac **fibroblast** DNA synthesis was reduced to near control levels by PD 098059, while it was inhibited completely by LY294002. 4. These results implicate the importance of MAPK and PI3-K activation in the signal transduction pathways necessary for cardiac **fibroblast** replication.

L9 ANSWER 14 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1999371150 EMBASE
TITLE: [Coxsackie B viruses and human heart diseases].
LE ROLE DES COXSACKIEVIRUS B DANS LES PATHOLOGIES CARDIAQUES HUMAINES.
AUTHOR: Andreoletti L.; Wattre P.
CORPORATE SOURCE: L. Andreoletti, Laboratoire de Virologie, CHRU de Lille, 59037 Lille Cedex, France. landreoletti@chru-lille.fr
SOURCE: Virologie, (1999) 3/4 (309-321).
Refs: 57
ISSN: 1267-8694 CODEN: VIROFD
COUNTRY: France
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 004 Microbiology
018 Cardiovascular Diseases and Cardiovascular Surgery
LANGUAGE: French
SUMMARY LANGUAGE: English; French
AB Coxsackie B viruses (CVB), Picornaviridae, are small RNA viruses which can infect myocytes, cardiac **fibroblasts** and vascular endothelial cells. Human CVB infections are common and frequently asymptomatic. However in infants, these viruses are the major. . . cardiomyopathy, and in 30 % of adult patients suffering from chronic coronary disease. The etiological role of CVB in chronic **cardiac** pathologies, leading indications for heart **transplantation**, remains controversial. However, experimentally induced-coxsackie B3 viruses chronic **cardiac** infection in various murine models demonstrated a persistent endomyocardial infection which could be explained by a restricted viral replication (defective. . .

L9 ANSWER 15 OF 49 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 2000024278 MEDLINE
DOCUMENT NUMBER: 20024278 PubMed ID: 10560488
TITLE: Nuclear size of myocardial cells in end-stage cardiomyopathies.
AUTHOR: Yan S M; Pinato N; Di Loreto C; Beltrami C A
CORPORATE SOURCE: Department of Pathology, University of Udine, Italy.
SOURCE: ANALYTICAL AND QUANTITATIVE CYTOLOGY AND HISTOLOGY, (1999 Apr) 21 (2) 174-80.
Journal code: ACQ; 8506819. ISSN: 0884-6812.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000111
Last Updated on STN: 20000111
Entered Medline: 19991124
AB . . . and cardiomyopathic human hearts. STUDY DESIGN: The study group consisted of 46 hearts obtained at biopsy. These patients had undergone **cardiac transplantation** for intractable congestive heart failure (18 cases with ischemic cardiomyopathy and 28 cases with idiopathic dilated cardiomyopathy). Another 10 hearts were collected at autopsy and used as control hearts according to preautopsy, autopsy and histology criteria. One hundred **fibroblasts** and 200 myocytes were evaluated in each ventricle. The nuclear area and DNA content were estimated using image cytometry. RESULTS:. . .

L9 ANSWER 16 OF 49 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 2000136492 MEDLINE

DOCUMENT NUMBER: 20136492 PubMed ID: 10672538
TITLE: Analysis of UV-B-induced DNA damage and its repair in heat-shocked skin cells.
AUTHOR: Schmidt-Rose T; Pollet D; Will K; Bergemann J; Wittern K P
CORPORATE SOURCE: Paul Gerson Unna-Skin Research Center, Beiersdorf AG, Hamburg, Germany.. schmidt@hamburg.beiersdorf.com
SOURCE: JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY. B, BIOLOGY, (1999 Nov-Dec) 53 (1-3) 144-52.
Journal code: JLI; 8804966. ISSN: 1011-1344.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200004
ENTRY DATE: Entered STN: 20000427
Last Updated on STN: 20000427
Entered Medline: 20000418
AB . . . Numerous reports demonstrate the beneficial effects of heat-shock protein induction on cell survival under toxic or oxidative stress, e.g., in **cardiac** and cerebral ischemia or prior to organ **transplantation**. However, there is little data on the effects of heat treatment on damage caused by UV irradiation. Applying three independent. . . C) on the initial extent of UV-B-induced DNA damage and its subsequent repair. For cultured human epidermal keratinocytes and dermal **fibroblasts** we can show reduced levels of nucleotide-excision-repair-associated DNA strand incision in the comet assay. Moreover, immunostaining and flow cytometric quantitation. . . dimers immediately and one day after irradiation, respectively, reveal that the initial DNA damage is not (keratinocytes) or only moderately ( **fibroblasts**) lower in heat-shocked cells as compared to untreated controls. However, excision repair of dimers is significantly attenuated during the first. . . summary, heat treatment (1 h, 43 degrees C) inducing heat-shock proteins reduces nucleotide excision repair of UV-B-mediated DNA lesions in **fibroblasts** and keratinocytes during the following 24 h. This is not necessarily caused by elevated heat-shock protein levels themselves. Possibly the. . .

L9 ANSWER 17 OF 49 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:36952 BIOSIS
DOCUMENT NUMBER: PREV200000036952
TITLE: Basic **Fibroblast** Growth Factor and differentiation of fetal **cardiac** myocytes. A potential improvement for fetal cell **transplant** therapy.
AUTHOR(S): Patterson, Michael J. (1); Oleg, Kopyov (1); Robert, Kloner A. (1)
CORPORATE SOURCE: (1) Good Samaritan Hosp, Los Angeles, CA USA
SOURCE: Circulation, (Nov. 2, 1999) Vol. 110, No. 18 SUPPL., pp. I.164.
Meeting Info.: 72nd Scientific Sessions of the American Heart Association Atlanta, Georgia, USA November 7-10, 1999
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
TI Basic **Fibroblast** Growth Factor and differentiation of fetal **cardiac** myocytes. A potential improvement for fetal cell **transplant** therapy.

L9 ANSWER 18 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:30400 CAPLUS
DOCUMENT NUMBER: 130:246644
TITLE: Effect of low-molecular-weight heparin on development of cardiac allograft vascular disease following heart transplantation in rats
AUTHOR(S): Hisatomi, K.
CORPORATE SOURCE: Second Department of Surgery, Faculty of Medicine, Kagoshima University Hospital, Kagoshima, 890-8520, Japan
SOURCE: Transplant. Proc. (1998), 30(8), 4337-4339
CODEN: TRPPA8; ISSN: 0041-1345
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
IT 106096-92-8, Acidic FGF 106096-93-9, Basic **fibroblast** growth factor
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(effect of low-mol.-wt. heparin on development of **cardiac** allograft vascular disease following heart **transplantation** in rats in relation to growth factor assocn.)

L9 ANSWER 19 OF 49 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 1999000397 MEDLINE
DOCUMENT NUMBER: 99000397 PubMed ID: 9786431
TITLE: Ligation of HLA class I molecules on smooth muscle cells with anti-HLA antibodies induces tyrosine phosphorylation, fibroblast growth factor receptor expression and cell proliferation.
AUTHOR: Bian H; Harris P E; Reed E F
CORPORATE SOURCE: Department of Pathology, College of Physicians and Surgeons of Columbia University, New York, NY 10032, USA.
SOURCE: INTERNATIONAL IMMUNOLOGY, (1998 Sep) 10 (9) 1315-23.
Journal code: AY5; 8916182. ISSN: 0953-8178.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981230
AB The development of transplant atherosclerosis, a manifestation of chronic rejection, is the major obstacle to long-term survival of **cardiac** and renal allografts. The incidence of **transplant** atherosclerosis is increased in transplant recipients producing antidonor HLA antibodies following transplantation, suggesting that anti-HLA antibodies play a role in. . . anti-HLA class I antibodies transduce signals in smooth muscle cells stimulating increased tyrosine phosphorylation of intracellular proteins and up-regulation of **fibroblast** growth factor (FGF) receptors. Antibody binding to class I molecules on smooth muscle cells is also accompanied by increased responsiveness. . .

L9 ANSWER 20 OF 49 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 1998303048 MEDLINE
DOCUMENT NUMBER: 98303048 PubMed ID: 9641346
TITLE: Gene transfer into rat heart-derived endothelial cells.
AUTHOR: Hein M; Ernst M; Moller F; Regensburger D
CORPORATE SOURCE: Department of Cardiovascular Surgery, University of Kiel, Germany.. MarcHein@compuserve.com
SOURCE: EUROPEAN JOURNAL OF CARDIO-THORACIC SURGERY, (1998 Apr) 13 (4) 460-6.
Journal code: AOJ; 8804069. ISSN: 1010-7940.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199808
ENTRY DATE: Entered STN: 19980903
Last Updated on STN: 19980903
Entered Medline: 19980827
AB OBJECTIVE: Progressive **graft** arteriosclerosis is responsible for the majority of late deaths in **cardiac transplant** recipients. Despite many investigations, the pathogenesis of this disease remains undetermined and its control inadequate. A somatic gene transfer during. . . via an aortic cannulae. The cells were purified by changing the medium 30 min after subcultivation in order to remove **fibroblasts** and smooth muscle cells. The endothelial cells (ECs) were identified by typical morphology and the uptake of Dil-Ac-LDL. The gene. . .

L9 ANSWER 21 OF 49 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:539034 CAPLUS
DOCUMENT NUMBER: 129:288788
TITLE: Elastase and elastase inhibitors and pulmonary and coronary artery disease
AUTHOR(S): Rabinovitch, Marlene
CORPORATE SOURCE: Division of Cardiovascular Research, University of Toronto, Toronto, Can.
SOURCE: Int. Congr. Ser. (1998), 1155(Atherosclerosis XI), 317-326
CODEN: EXMDA4; ISSN: 0531-5131
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 20 refs. Background. Increased elastolytic activity is assocd. with development and progression of pulmonary hypertension in exptl. animals. Elastase inhibitors prevent the development of pulmonary vascular disease in exptl. models. Endogenous vascular elastase appears to be an enzyme 20 kDa in mol. wt., is expressed by smooth muscle cells (SMC) and is a serine proteinase related structurally to the adipocyte enzyme, adipsin. Methods. We used cell-culture systems to det. the mechanisms whereby elastase is released and induces vascular disease in pulmonary as well as coronary arteries. Results. Elastase is induced by serum factors including apolipoprotein A1 (apo A1). The signaling mechanisms involve induction of the MAP-kinase pathway with increased expression of the transcription factor AML1. Increased activity of elastase results in the release of mitogens from the extracellular matrix such as basic **fibroblast** growth factor (FGF-2). Elastases in concert with matrix metalloproteinases can proteolyze collagen leading to the upregulation of the glycoprotein, tenascin, which is necessary to amplify the proliferative response to growth factors. The mechanism involves .beta.3-integrin-mediated signaling of the matrix glycoprotein tenascin. Elastin peptides upregulate fibronectin prodn., which is necessary for smooth muscle cell migration. Elastin peptides synergize with the cytokine interleukin 1.beta. in inducing fibronectin in coronary artery SMC. Conclusions. Since our other studies have shown that elastase inhibitors prevent the development of coronary artery disease exptl. induced after **cardiac transplant**, these enzymes might be implicated in other conditions with rapid development of neointimal formation such as restenosis.

L9 ANSWER 22 OF 49 MEDLINE DUPLICATE 16
ACCESSION NUMBER: 1999065735 MEDLINE
DOCUMENT NUMBER: 99065735 PubMed ID: 9824547
TITLE: Regenerative biology and engineering: strategies for tissue restoration.
COMMENT: Comment in: Wound Repair Regen. 1998 Jul-Aug;6(4):273-5
AUTHOR: Stocum D L
CORPORATE SOURCE: Department of Biology, Indiana University-Purdue University, Indianapolis, USA.
SOURCE: WOUND REPAIR AND REGENERATION, (1998 Jul-Aug) 6 (4) 276-90.
Ref: 116
Journal code: C81; 9310939. ISSN: 1067-1927.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199901
ENTRY DATE: Entered STN: 19990128
Last Updated on STN: 19990128
Entered Medline: 19990114
AB . . . line-derived cardiomyocytes have been shown to differentiate and integrate well with the ventricular myocardium, suggesting the feasibility of using such **transplants** to restore damaged **cardiac** muscle. Diabetic symptoms in humans have been alleviated by implanting a bioartificial pancreas consisting of islet cells microencapsulated in alginate.. . . gaps. Collagenous artificial matrixes can stimulate the regeneration of dermis, and peripheral nerve grafts embedded in a fibrin clot containing **fibroblast** growth factor-1 stimulate some regeneration of spinal cord axons in adult rats. Future research in regenerative biology will focus on. . .

L9 ANSWER 23 OF 49 MEDLINE DUPLICATE 17
ACCESSION NUMBER: 1998450875 MEDLINE
DOCUMENT NUMBER: 98450875 PubMed ID: 9777700
TITLE: Methotrexate regulates ICAM-1 expression in recipients of rat cardiac allografts.
AUTHOR: Ciesielski C J; Pflug J J; Mei J; Piccinini L A
CORPORATE SOURCE: Department of Cell Biology, Neurobiology and Anatomy, Loyola University Chicago, Stritch School of Medicine, Maywood, Illinois, USA.
SOURCE: TRANSPLANT IMMUNOLOGY, (1998 Jun) 6 (2) 111-21.

Journal code: B32; 9309923. ISSN: 0966-3274.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199812
ENTRY DATE: Entered STN: 19990115
Last Updated on STN: 19990115
Entered Medline: 19981208

AB . . . mediates immunosuppression at low doses remains to be elucidated. MTX has been shown to inhibit the adherence of neutrophils and **fibroblasts** to endothelial cells in vitro. The hypothesis that MTX treatment may affect cellular adherence by downregulating cell adhesion molecule expression formed the rationale for these studies. Previous studies of rat **cardiac transplant** recipients in our laboratory demonstrated that low-dose MTX treatment alone significantly inhibits the expression of the leucocyte beta 2 integrin. . . Lewis (Lew) rat accessory cervical heart allografts. According to both Northern blot and immunohistochemical analysis, ICAM-1 expression was upregulated in **graft** regional lymph nodes and in the spleen of untreated **cardiac** allograft recipients within 6 h post-**transplantation**. Despite induction of VCAM-1 expression, ICAM-1 expression remained low or undetectable in cardiac allograft tissue as measured both by reverse. . . ICAM-1 may function in leucocyte trafficking through lymphoid organs, such as the lymph nodes and spleen, but not directly in **graft** leucocyte recruitment during BN to Lew rat **cardiac** allograft rejection. Despite prolonged allograft survival with cyclosporine A alone and combination cyclosporine A/MTX, these treatments did not result in. . .

L9 ANSWER 24 OF 49 MEDLINE DUPLICATE 18
ACCESSION NUMBER: 1999050354 MEDLINE
DOCUMENT NUMBER: 99050354 PubMed ID: 9833160
TITLE: Myocardial angiotensin receptors in human hearts.
AUTHOR: Regitz-Zagrosek V; Fielitz J; Fleck E
CORPORATE SOURCE: Klinik fur Kardiologie, DHZB und Charite, Berlin, Germany.
SOURCE: BASIC RESEARCH IN CARDIOLOGY, (1998) 93 Suppl 2 37-42.
Ref: 17
Journal code: 9K3; 0360342. ISSN: 0300-8428.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199902
ENTRY DATE: Entered STN: 19990223
Last Updated on STN: 19990223
Entered Medline: 19990211

AB . . . endings, and conduction tissues. AT2 has so far been found in fibrous tissue and endothelial cells. AT1 mediates myocyte hypertrophy, **fibroblast** proliferation, collagen synthesis, smooth muscle cell growth, endothelial adhesion molecule expression, and catecholamine synthesis. AT1 is downregulated in **cardiac** failure as well as in the hypertrophied **transplanted** heart, indicating that a 50% loss of AT1 does not impede cardiac hypertrophy. In heart failure therapy, AT1 antagonists differ. . .

L9 ANSWER 25 OF 49 MEDLINE DUPLICATE 19
ACCESSION NUMBER: 1998043245 MEDLINE
DOCUMENT NUMBER: 98043245 PubMed ID: 9375610
TITLE: Specific effects of estrogen on growth factor and major histocompatibility complex class II antigen expression in rat aortic allograft.
AUTHOR: Saito S; Motomura N; Lou H; Ramwell P W; Foegh M L
CORPORATE SOURCE: Department of Surgery, Georgetown University Medical Center, Washington, D.C. 20007, USA.
CONTRACT NUMBER: R01HL58896 (NHLBI)
SOURCE: JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY, (1997 Nov) 114 (5) 803-9; discussion 809-10.
Journal code: K9J; 0376343. ISSN: 0022-5223.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199712
ENTRY DATE: Entered STN: 19980109
Last Updated on STN: 19980109
Entered Medline: 19971218

AB OBJECTIVE: **Transplant** arteriosclerosis is the major determinant for long-term survival of **cardiac transplants**. Estradiol treatment inhibits **transplant** arteriosclerosis. The objective of this study is to determine, in the absence of immunosuppression, the temporal effect of estradiol treatment on the expression of insulin-like growth factor, platelet-derived growth factor, basic **fibroblast** growth factor, and major histocompatibility complex class II antigen in rat aortic allografts. METHODS: Orthotopic abdominal aortic allograft transplantation was. . . postoperative days 1, 3, 7, 14, or 21. The allografts were harvested and insulin-like growth factor, platelet-derived growth factor, basic **fibroblast** growth factor, and major histocompatibility complex class II antigen expression were determined by immunohistochemical staining. Myointimal thickening was measured by. . . progressively increased in all three layers of the allograft, whereas platelet-derived growth factor protein peaked at day 3 and basic **fibroblast** growth factor protein increased only moderately. Estradiol treatment inhibited the continuous increase in insulin-like growth factor expression, the peak in platelet-derived growth factor expression at day 3, the moderate-basic **fibroblast** growth factor increase at day 21, and major histocompatibility complex class II antigen expression in all three layers of the. . . and suppresses insulin-like growth factor and major histocompatibility complex class II antigen expression but not platelet-derived growth factor or basic **fibroblast** growth factor in all three layers of the allograft during the early posttransplantation alloimmune rejection phase.

L9 ANSWER 26 OF 49 MEDLINE DUPLICATE 20
ACCESSION NUMBER: 97164695 MEDLINE
DOCUMENT NUMBER: 97164695 PubMed ID: 9012502
TITLE: Zebrafish tinman homolog demarcates the heart field and initiates myocardial differentiation.
AUTHOR: Chen J N; Fishman M C
CORPORATE SOURCE: Cardiovascular Research Center, Massachusetts General Hospital, and Department of Medicine, Harvard Medical

School, Charlestown 02129, USA.
CONTRACT NUMBER: NIH RO1-HL49579 (NHLBI)
NIH RO1-RR08888 (NCRR)
SOURCE: DEVELOPMENT, (1996 Dec) 122 (12) 3809-16.
Journal code: ECW; 8701744. ISSN: 0950-1991.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-S83517
ENTRY MONTH: 199702
ENTRY DATE: Entered STN: 19970306
Last Updated on STN: 20000303
Entered Medline: 19970224
AB . . . of ventral-marginal cells to become heart. Overexpression of Nkx2.5 causes formation of disproportionally larger hearts in otherwise apparently normal embryos. **Transplanted** cell expressing high levels of Nkx2.5 express **cardiac** genes even in ectopic locales. **Fibroblasts** transfected with myc-tagged Nkx2.5 express cardiac genes. These effects require the homeodomain. Thus, Nkx2.5 appears to mark the earliest embryonic heart field and to be capable of initiating the cardiogenic differentiation program. Because ectopic cells or transfected **fibroblasts** do not beat, Nkx2.5 is likely to be but one step in the determination of cardiac myocyte cell fate. Its. . .

L9 ANSWER 27 OF 49 MEDLINE DUPLICATE 21
ACCESSION NUMBER: 96247373 MEDLINE
DOCUMENT NUMBER: 96247373 PubMed ID: 8651097
TITLE: Immunohistochemical analysis of platelet-derived growth factor and basic **fibroblast** growth factor in **cardiac** biopsy and autopsy specimens of heart **transplant** patients.
AUTHOR: Shaddy R E; Hammond E H; Yowell R L
CORPORATE SOURCE: Department of Pediatrics, University of Utah School of Medicine, Salt Lake City 84113, USA.
SOURCE: AMERICAN JOURNAL OF CARDIOLOGY, (1996 Jun 1) 77 (14) 1210-5.
Journal code: 3DQ; 0207277. ISSN: 0002-9149.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199607
ENTRY DATE: Entered STN: 19960805
Last Updated on STN: 19960805
Entered Medline: 19960725
TI Immunohistochemical analysis of platelet-derived growth factor and basic **fibroblast** growth factor in **cardiac** biopsy and autopsy specimens of heart **transplant** patients.

L9 ANSWER 28 OF 49 MEDLINE DUPLICATE 22
ACCESSION NUMBER: 96382190 MEDLINE
DOCUMENT NUMBER: 96382190 PubMed ID: 8790054
TITLE: Nonmuscle and smooth muscle myosin heavy chain expression in rejected cardiac allografts. A study in rat and monkey models.
AUTHOR: Suzuki J; Isobe M; Aikawa M; Kawauchi M; Shiojima I; Kobayashi N; Tojo A; Suzuki T; Kimura K; Nishikawa T; Sakai T; Sekiguchi M; Yazaki Y; Nagai R
CORPORATE SOURCE: Third Department of Internal Medicine, Faculty of Medicine, University of Tokyo, Japan.
SOURCE: CIRCULATION, (1996 Sep 1) 94 (5) 1118-24.
Journal code: DAW; 0147763. ISSN: 0009-7322.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961025
Last Updated on STN: 19961025
Entered Medline: 19961017
AB BACKGROUND: Diagnosis of acute rejection and **graft** arteriosclerosis (chronic rejection) is critical to the success of **cardiac transplantation**, but accurate diagnosis is often difficult. We have reported that there are three types of vascular myosin heavy chain (MHC). . . METHODS AND RESULTS: To evaluate the usefulness of MHC expression for diagnosis and analysis of acute and chronic rejection, heterotopic **cardiac transplantation** was performed in rats and monkeys. Immunohistochemistry, electron microscopy, and Northern blot assay were performed to evaluate MHC expression. SMemb. . . in the rats and monkeys. These cells were also observed in areas lacking cellular infiltration. These SMemb-positive cells were activated **fibroblasts** or myofibroblasts. SMemb mRNA was enhanced parallel to the progression of acute rejection. In the coronary arteries of chronically rejected. . .

L9 ANSWER 29 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96140240 EMBASE
DOCUMENT NUMBER: 1996140240
TITLE: Preparation of hybrid muscular tissue composed of skeletal muscle cells and collagen.
AUTHOR: Okano T.; Oka T.; Matsuda T.
CORPORATE SOURCE: Department of Biomedical Engineering, Natl. Cardiovascular Ctr. Res. Inst., 5-7-1 Fujishirodai,Suita, Osaka 565, Japan
SOURCE: Japanese Journal of Artificial Organs, (1996) 25/1 (197-203).
ISSN: 0300-0818 CODEN: JNZKA7
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese
AB . . . Primary culture of satellite cells of SKCs, harvested from thigh muscle of newborn and fetal rat, failed due to contaminated **fibroblasts** which dominated at a prolonged culture period. On the other hand, hybrid muscular tissues were prepared using Mbs (C2C12 mouse. . . tissue became time-dependently dense and both collagen and cells were circumferentially oriented. We discuss the possibility of use as a **transplantation** vehicle for reconstruction of damaged and diseased skeletal and **cardiac** muscle tissues.

L9 ANSWER 30 OF 49 MEDLINE DUPLICATE 23

ACCESSION NUMBER: 96255071 MEDLINE
DOCUMENT NUMBER: 96255071 PubMed ID: 8830177
TITLE: Clinical and laboratory findings in four patients with the non-progressive hepatic form of type IV glycogen storage disease.
AUTHOR: McConkie-Rosell A; Wilson C; Piccoli D A; Boyle J; DeClue T; Kishnani P; Shen J J; Boney A; Brown B; Chen Y T
CORPORATE SOURCE: Department of Pediatrics, Duke University Medical Center, Durham, North Carolina 27710, USA.
CONTRACT NUMBER: DK 39078 (NIDDK)
M01-RR30 (NCRR)
SOURCE: JOURNAL OF INHERITED METABOLIC DISEASE, (1996) 19 (1) 51-8.
Journal code: KY8; 7910918. ISSN: 0141-8955.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961025
Last Updated on STN: 19961025
Entered Medline: 19961017
AB . . . long-term follow-up of the oldest identified patients (ages 13 and 20 years). None has developed progressive liver cirrhosis, skeletal muscle, **cardiac** or neurological involvement, and none has been **transplanted**. Branching enzyme activity was also measured in cultured skin **fibroblasts** from patients with the classic liver progressive, the early neonatal fatal, and the non-progressive hepatic presentations of GSD IV. The. . .

L9 ANSWER 31 OF 49 MEDLINE DUPLICATE 24
ACCESSION NUMBER: 96083849 MEDLINE
DOCUMENT NUMBER: 96083849 PubMed ID: 7482709
TITLE: Pharmacologically induced regression of chronic transplant rejection.
AUTHOR: Xiao F; Chong A; Shen J; Yang J; Short J; Foster P; Sankary H; Jensik S; Mital D; McChesney L; +
CORPORATE SOURCE: Department of General Surgery, Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois 60612, USA.
CONTRACT NUMBER: RO1AI34061 (NIAID)
SOURCE: TRANSPLANTATION, (1995 Nov 27) 60 (10) 1065-72.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199512
ENTRY DATE: Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951228
AB . . . shown to be a novel immunomodulatory drug that profoundly suppresses the immune response. In this study, 58 Fisher-344 rats received **cardiac transplantation** from Lewis rats. All the recipients were given CsA at 2.5 mg/kg for 5 days postoperatively. Without further treatments, the arterial intima was progressively injured by mononuclear cell infiltration and Ab deposition. Smooth muscle cell and **fibroblast** proliferation in the intima became a predominant phenomenon by day 90. CsA was ineffective in controlling the progress of arterial. . .

L9 ANSWER 32 OF 49 MEDLINE DUPLICATE 25
ACCESSION NUMBER: 95224770 MEDLINE
DOCUMENT NUMBER: 95224770 PubMed ID: 7535956
TITLE: Association of acidic fibroblast growth factor and untreated low grade rejection with cardiac allograft vasculopathy.
AUTHOR: Zhao X M; Citrin B S; Miller G G; Frist W H; Merrill W H; Fischell T A; Atkinson J B; Yeoh T K
CORPORATE SOURCE: Vanderbilt Transplant Center, Vanderbilt University School of Medicine, Nashville, Tennessee 37232, USA.
SOURCE: TRANSPLANTATION, (1995 Apr 15) 59 (7) 1005-10.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950518
Last Updated on STN: 19960129
Entered Medline: 19950511
AB Acidic **fibroblast** growth factor (aFGF) is a potent growth factor for vascular smooth muscle cells and may mediate vasculopathy in cardiac allografts. . . Therefore, we examined cardiac expression of aFGF, the number of rejection episodes, and other potential risk factors in 32 heart **transplant** patients who underwent intravascular ultrasound (IVUS) for detection of **cardiac** allograft vasculopathy (CAV). As defined by IVUS, CAV was present in 21 patients and absent in 11 patients (follow-up time:. . .

L9 ANSWER 33 OF 49 MEDLINE DUPLICATE 26
ACCESSION NUMBER: 96371724 MEDLINE
DOCUMENT NUMBER: 96371724 PubMed ID: 8775547
TITLE: Elastase and cell matrix interactions in the pathobiology of vascular disease.
AUTHOR: Rabinovitch M
CORPORATE SOURCE: Division of Cardiovascular Research, University of Toronto, Ontario, Canada.
SOURCE: ACTA PAEDIATRICA JAPONICA, (1995 Dec) 37 (6) 657-66. Ref: 45
Journal code: 1L3; 0370357. ISSN: 0374-5600.
PUB. COUNTRY: Australia
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199612
ENTRY DATE: Entered STN: 19970128
Last Updated on STN: 20000303
Entered Medline: 19961204
AB . . . shown that both serum and endothelial factors induce EVE via tyrosine kinase intracellular signalling. Induction of EVE can release basic **fibroblast** growth factor from the extracellular matrix in an active form stimulating smooth muscle cell proliferation. Elastase

activity was also observed in the process of smooth muscle cell migration and neointimal formation in coronary arteries following experimental **cardiac transplantation**. An immune/inflammatory response is observed with increased production of cytokines, tumor necrosis factor-alpha and interleukin (IL)-1 beta, reciprocally up-regulating production. . . integrins on T cells with a decoy synthetic CS-1 (fibronectin) peptide largely prevented transendothelial migration and coronary neointimal formation following **cardiac transplant**.

L9 ANSWER 34 OF 49 MEDLINE DUPLICATE 27
ACCESSION NUMBER: 94240743 MEDLINE
DOCUMENT NUMBER: 94240743 PubMed ID: 8184476
TITLE: Ventricular expression of basic **fibroblast** growth factor gene after orthotopic **cardiac transplantation**.
AUTHOR: Ationu A; Carter N
CORPORATE SOURCE: Heart Science Centre, Harefield Hospital, Middlesex, England.
SOURCE: TRANSPLANTATION, (1994 May 15) 57 (9) 1364-6.
Journal code: WEJ; 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199406
ENTRY DATE: Entered STN: 19940621
Last Updated on STN: 19940621
Entered Medline: 19940614
TI Ventricular expression of basic **fibroblast** growth factor gene after orthotopic **cardiac transplantation**.

L9 ANSWER 35 OF 49 MEDLINE DUPLICATE 28
ACCESSION NUMBER: 94365218 MEDLINE
DOCUMENT NUMBER: 94365218 PubMed ID: 7521891
TITLE: Modification of alternative messenger RNA splicing of fibroblast growth factor receptors in human cardiac allografts during rejection.
AUTHOR: Zhao X M; Frist W H; Yeoh T K; Miller G G
CORPORATE SOURCE: Vanderbilt Transplant Center, Department of Thoracic Surgery, Vanderbilt University School of Medicine, Nashville 37232.
CONTRACT NUMBER: RO1 DK-41312 (NIDDK)
SOURCE: JOURNAL OF CLINICAL INVESTIGATION, (1994 Sep) 94 (3) 992-1003.
Journal code: HS7; 7802877. ISSN: 0021-9738.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199410
ENTRY DATE: Entered STN: 19941021
Last Updated on STN: 19960129
Entered Medline: 19941013
AB Accelerated coronary atherosclerosis in **cardiac transplants** (**cardiac** allograft vasculopathy, CAV) is characterized by coronary intimal hyperplasia. Acidic **fibroblast** growth factor (aFGF) is a potent mitogen for vascular smooth muscle cells and endothelial cells, and its expression is increased. . .

L9 ANSWER 36 OF 49 MEDLINE DUPLICATE 29
ACCESSION NUMBER: 96145460 MEDLINE
DOCUMENT NUMBER: 96145460 PubMed ID: 8555616
TITLE: A new cardiac wall substitute with high affinity for fibroblasts that can induce an endothelial cell lining.
AUTHOR: Noishiki Y; Takahashi K; Yamamoto K; Mo M; Matsumoto A; Yamane Y; Miyata T
CORPORATE SOURCE: First Department of Surgery, Yokohama City University School of Medicine, Japan.
SOURCE: ASAIO JOURNAL, (1994 Jul-Sep) 40 (3) M751-6.
Journal code: BBH; 9204109. ISSN: 1058-2916.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199602
ENTRY DATE: Entered STN: 19960312
Last Updated on STN: 19960312
Entered Medline: 19960226
AB A new **cardiac** wall substitute (PC **graft**) was developed using equine pericardium cross-linked with a polyepoxy compound. Compared with glutaraldehyde cross-linked pericardium (GA graft), the PC graft showed an approximately 10 times higher affinity for **fibroblasts** as measured by our in vitro cell migration and proliferation test. Six PC grafts (5 x 3 cm) were implanted into the right ventricular-pulmonary outflow tract position as a **cardiac** wall patch. Three GA **grafts** were used as controls. The PC grafts showed excellent handling during surgery because of their softness and elasticity. These grafts. . . luminal surface. Light microscopic observation showed that the PC graft surface was covered with a connective tissue layer and significant **fibroblast** infiltration. Approximately 60% of the area infiltrated by these **fibroblasts** was endothelialized, whereas in the GA graft, endothelialization was limited to within 2-5 mm of the suture line. Other areas were covered with a thrombus layer without any endothelial cells or **fibroblast** infiltration. PC cross-linking can maintain the biologic and mechanical properties of the original materials. The PC graft offered excellent affinity for **fibroblast** migration and proliferation, which induced an endothelial cell lining on the surface. The results of this experiment indicated that the. . .

L9 ANSWER 37 OF 49 MEDLINE DUPLICATE 30
ACCESSION NUMBER: 94320240 MEDLINE
DOCUMENT NUMBER: 94320240 PubMed ID: 7519129
TITLE: Induction of acidic fibroblast growth factor and full-length platelet-derived growth factor expression in human cardiac allografts. Analysis by PCR, in situ hybridization, and immunohistochemistry.
AUTHOR: Zhao X M; Yeoh T K; Frist W H; Porterfield D L; Miller G G
CORPORATE SOURCE: Vanderbilt Transplant Center, Nashville, Tenn.
CONTRACT NUMBER: RO1-DK-41312 (NIDDK)
SOURCE: CIRCULATION, (1994 Aug) 90 (2) 677-85.
Journal code: DAW; 0147763. ISSN: 0009-7322.

PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199408
ENTRY DATE: Entered STN: 19940909
Last Updated on STN: 19960129
Entered Medline: 19940826

AB BACKGROUND: Further understanding of cardiac allograft vasculopathy (CAV) is needed to improve long-term survival after **cardiac transplantation**. The diffuse hyperplasia of coronary intima characteristic of CAV suggests that growth factors may play a role in the development of CAV. **Fibroblast** growth factor (FGF) and platelet-derived growth factor (PDGF) are potent mitogens for smooth muscle cells (SMCs), and PDGF is an. . . coronary atherosclerosis. METHODS AND RESULTS: Reverse transcriptase/polymerase chain reaction (RT/PCR), in situ hybridization, and immunohistochemistry were used to determine whether **transplantation** results in increased **cardiac** expression of acidic (a) FGF, basic (b) FGF, and PDGF-A and -B chains. Sixty-eight myocardial biopsies from 36 heart transplant. . .

L9 ANSWER 38 OF 49 MEDLINE DUPLICATE 31
ACCESSION NUMBER: 95071362 MEDLINE
DOCUMENT NUMBER: 95071362 PubMed ID: 7980514
TITLE: The predominant form of fibroblast growth factor receptor expressed by proliferating human arterial smooth muscle cells in culture is type I.
AUTHOR: Xin X; Johnson A D; Scott-Burden T; Engler D; Casscells W
CORPORATE SOURCE: Vascular Cell Biology Laboratory, Texas Heart Institute, Houston.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1994 Oct 28) 204 (2) 557-64.
Journal code: 9Y8; 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199411
ENTRY DATE: Entered STN: 19950110
Last Updated on STN: 19950110
Entered Medline: 19941130

AB **Fibroblast** growth factors (FGF) and their specific receptors (FGFR) have diverse roles, including induction of proliferation in smooth muscle cells which. . . were established by the explant technique from intima/media tissue samples obtained from patients undergoing either coronary artery bypass surgery or **cardiac transplantation** procedures. Expression of FGFR isoforms was analyzed by reverse transcription-polymerase chain reaction (RT-PCR) using primers for the conserved tyrosine kinase. . .

L9 ANSWER 39 OF 49 EMBASE 
ACCESSION NUMBER: 94105820 EMBASE
DOCUMENT NUMBER: 1994105820
TITLE: Scanning electron microscopy study of endocardial regeneration in bovine pericardial patch-grafts implanted in the canine heart.
AUTHOR: Macchiarelli G.; DiDio L.J.A.; Allen D.J.; Stolf N.G.; Pego-Fernandes P.; Motta P.M.
CORPORATE SOURCE: Department of Anatomy, University 'La Sapienza', Via A Borelli 50,00161 Rome, Italy
SOURCE: Cardioscience, (1994) 5/1 (43-49).
ISSN: 1015-5007 CODEN: CRDIEG
COUNTRY: Italy
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English

AB . . . surface displayed a continuous network of connective fibers with a few blood cells and isolated groups of spindle-shaped cells resembling **fibroblasts**. At 21-60 days, the cardiac surface showed a diffuse growth of cells on the connective fiber substratum. Regenerating cells first. . . the spreading and attachment of the lining cells on this surface rather than on the thoracic surface. As only the **cardiac** aspect displayed endocardial regeneration, pericardial patch-**grafts** should be placed with the **cardiac** surface facing the **cardiac** lumen in order to minimize the thrombogenicity of the connective tissue exposed to the blood.

L9 ANSWER 40 OF 49 MEDLINE DUPLICATE 32
ACCESSION NUMBER: 93019838 MEDLINE
DOCUMENT NUMBER: 93019838 PubMed ID: 1357122
TITLE: Assessment of rejection in orthotopic human heart transplantation using proliferating cell nuclear antigen (PCNA) as an index of cell proliferation.
AUTHOR: Mann J M; Jennison S H; Moss E; Davies M J
CORPORATE SOURCE: British Heart Foundation Cardiovascular Pathology Unit, Department of Cardiological Sciences, St George's Hospital Medical School, London, U.K.
SOURCE: JOURNAL OF PATHOLOGY, (1992 Aug) 167 (4) 385-9.
Journal code: JLB; 0204634. ISSN: 0022-3417.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199211
ENTRY DATE: Entered STN: 19930122
Last Updated on STN: 19950206
Entered Medline: 19921113

AB Myocardial biopsies taken during the management of **cardiac transplantation** were stained for proliferating cell nuclear antigen (PCNA). Counts of PCNA-positive interstitial cells were compared, in retrospect, with the reported. . . and which immediately preceded more severe rejection episodes showed no increase in PCNA-positive cells. The majority of PCNA-positive cells are **fibroblasts**, although in grade 2b and 3 rejection a small population of PCNA-positive T lymphocytes occurs. PCNA staining is also seen in **cardiac** myocytes immediately after **transplantation**, during rejection episodes, and late after **transplantation** in the absence of rejection. The positive PCNA staining of **cardiac** myocytes probably reflects DNA synthesis that occurs with the shift toward polyploidy in hypertrophy.

L9 ANSWER 41 OF 49 MEDLINE

ACCESSION NUMBER: 93161009 MEDLINE
DOCUMENT NUMBER: 93161009 PubMed ID: 1286409
TITLE: [Soft tissue ossification: mechanism].
L'ossification dans les tissus mous: le mecanisme.
AUTHOR: Danis A
CORPORATE SOURCE: Laboratoire de Chirurgie experimentale, Universite libre de Bruxelles.
SOURCE: BULLETIN ET MEMOIRES DE L ACADEMIE ROYALE DE MEDECINE DE BELGIQUE, (1992) 147 (6-7) 298-306; discussion 306-7.
Journal code: BOX; 7608462. ISSN: 0377-8231.
PUB. COUNTRY: Belgium
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: French
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199303
ENTRY DATE: Entered STN: 19930402
Last Updated on STN: 19930402
Entered Medline: 19930318
AB Three experiments: **cardiac** ligature, subcutaneous implantation of glass diaphragm and regenerated calcaneus tendon **transplantation**, produce new bone with marrow. The mechanism proceeds in two steps: 1) after trauma or local irritation, mesenchymal **fibroblasts** enter in division; this young population remains fibrous indefinitely; 2) those young reactive cells, submitted to local oxygen deficiency, build. . . cells participate in this ossicle as it is rejected in a foreign host. Ectopic ossification is an active phenomenon, young **fibroblast** population building its own inductor, quite different from passive osteogenesis in which inductive message is produced outside the responsive cell.. . .

L9 ANSWER 42 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 92142372 EMBASE
DOCUMENT NUMBER: 1992142372
TITLE: Maroteaux-Lamy syndrome: (Mucopolysaccharidosis type VI) treatment by allogeneic bone marrow transplantation in 6 patients and potential for autotransplantation bone marrow gene insertion.
AUTHOR: Krivit W.
CORPORATE SOURCE: University of Minnesota, 1252 Ingerson Road,St. Paul, MN 55112, United States
SOURCE: International Pediatrics, (1992) 7/1 (47-52).
ISSN: 0885-6265 CODEN: INPDEV
COUNTRY: United States
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
022 Human Genetics
025 Hematology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Maroteaux-Lamy syndrome is a mucopolysaccharidosis due to an enzymatic deficiency of arylsulfatase B (N-acetylgalactosamine-4-sulfatase) (ASB; EC 3.1.6.1) in the leukocytes, **fibroblasts** and tissues. This storage disease is inherited as an autosomal recessive. The clinical description includes presentation with hepatosplenomegaly, dysostosis multiplex with later development of pulmonary and **cardiac** insufficiency. Bone marrow **transplantation** has successfully corrected the enzymatic defect in 6 patients. The gene for the arylsulfatase B has been characterized and cloned.. . . been constructed into which the normal gene has been inserted. The normal gene with the vector has been introduced into **fibroblasts** from Maroteaux-Lamy patients and normal, and even greater than normal, amounts of arylsulfatase B have been produced. Previously, the experimental. . .

L9 ANSWER 43 OF 49 MEDLINE DUPLICATE 33
ACCESSION NUMBER: 91214216 MEDLINE
DOCUMENT NUMBER: 91214216 PubMed ID: 1850589
TITLE: Cytomegalovirus endomyocarditis in a transplanted heart. A case report with in situ hybridization.
AUTHOR: Millett R; Tomita T; Marshall H E; Cohen L; Hannah H 3rd
CORPORATE SOURCE: Department of Pathology, Menorah Medical Center, Kansas City, MO.
SOURCE: ARCHIVES OF PATHOLOGY AND LABORATORY MEDICINE, (1991 May) 115 (5) 511-5.
Journal code: 79Z; 7607091. ISSN: 0003-9985.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199105
ENTRY DATE: Entered STN: 19910616
Last Updated on STN: 19910616
Entered Medline: 19910530
AB A 64-year-old man underwent **cardiac transplantation** for long-standing severe dilated cardiomyopathy. Postoperative complications included primary cytomegalovirus (CMV) infection with several episodes of moderate acute rejection and. . . and myocardium. With in situ hybridization, the presence of CMV was verified in the inclusions, as well as in many **fibroblasts** without inclusions. In situ hybridization is warranted in myocardial biopsy specimens when suspicious inclusions or infiltrates are present, to confirm. . .

L9 ANSWER 44 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 34
ACCESSION NUMBER: 90379239 EMBASE
DOCUMENT NUMBER: 1990379239
TITLE: Human-to-rabbit xenograft model for evaluation of recanalization techniques.
AUTHOR: Oz M.C.; Lemole G.M.; Trokel S.L.; Treat M.R.; Andrew J.E.; Barr M.L.; Popilskis S.J.; Nowygrod R.
CORPORATE SOURCE: Department of Surgery, Columbia-Presbyterian Medical Center, Box 170, 622 West 168th Street, New York, NY 10032, United States
SOURCE: Vascular Surgery, (1990) 24/8 (559-563).
ISSN: 0042-2835 CODEN: VASUA
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 009 Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English
AB . . . rabbit aorta. Human atherosclerotic tissue obtained from either peripheral vascular operative specimens or from resected hearts of patients undergoing orthotopic **cardiac transplantation** were sectioned into 10 patches and 5 vessel segments and placed into the

aortas of 15 rabbits. A thin platelet-fibrin. . . the graft but did not progress to occlude the graft. This layer matured over a two-week period, with ingrowth of **fibroblasts**. Endothelialization occurred only at the anastomotic sites. Rejection was characterized by development over a ten-day period of multinucleate giant foreign. . .

L9 ANSWER 45 OF 49 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 88002323 EMBASE
DOCUMENT NUMBER: 1988002323
TITLE: The effect of pretreatment with a single cloned donor class I gene product on cardiac allograft survival in mice.
AUTHOR: Superina R.A.; Wood K.J.; Morris P.J.
CORPORATE SOURCE: Nuffield Department of Surgery, University of Oxford, John Radcliffe Hospital, Oxford OX3 9DU, United Kingdom
SOURCE: Transplantation, (1987) 44/5 (719-721).
ISSN: 0041-1337 CODEN: TRPLAU
COUNTRY: United States
DOCUMENT TYPE: Journal
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB . . . encoding the H-2 D locus product of the 'b' haplotype (Db) were used to treat prospective C3H/He (H-2(k)) recipients before **transplantation** of C57BL/10 (H-b) **cardiac** allografts, in order to investigate the effect of pretreatment with a single locus class I gene product on graft survival.. . . In this study we have found a modest but definite prolongation of cardiac allograft survival in recipients pretreated with the **fibroblasts** (H-2(k)) that were transfected with and expressed Db molecules (LDb-1 cells). The unresponsiveness induced was b haplotype-specific since third-party NZW. . . cells (LDb-1) were uniformly rejected, in the same time as NZW hearts transplanted into untreated C3H/He recipients. By using syngeneic **fibroblasts** transfected with a single class I gene of donor haplotype, we have obviated the necessity of eliminating class-II-bearing cells in. . .

L9 ANSWER 46 OF 49 MEDLINE DUPLICATE 35
ACCESSION NUMBER: 87093899 MEDLINE
DOCUMENT NUMBER: 87093899 PubMed ID: 3467407
TITLE: [Essential and iatrogenic gingival hyperplasia. Its morphology and significance].
Les hyperplasies gingivales essentielles et iatrogeniques. Morphologie et signification.
AUTHOR: Chomette G; Auriol M; Szpirglas H; Ragot J; Thomas D; Cabrol C; Vaillant J M
SOURCE: REVUE DE STOMATOLOGIE ET DE CHIRURGIE MAXILLO-FACIALE, (1986) 87 (5) 287-93.
Journal code: T8M; 0201010. ISSN: 0035-1768.
PUB. COUNTRY: France
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: French
FILE SEGMENT: Dental Journals; Priority Journals
ENTRY MONTH: 198702
ENTRY DATE: Entered STN: 19900302
Last Updated on STN: 19970203
Entered Medline: 19870218
AB . . . idiopathic gingival hyperplasia (3 cases), gravidic hyperplasia (1 case), iatrogenic hyperplasia (5 cases after cyclosporin A administrated in patients with **cardiac grafts**, 2 cases after treatment by Adalat). By optic microscopy, the deep collagen base is thickened, associated sometimes to an inflammatory process. By histoenzymology, the **fibroblasts** have high activities of their oxidative enzymes and also of the enzymes of protein synthesis. The electron microscopy corroborates the numerous globular **fibroblasts** with well-developed rough endoplasmic reticulum. These results prove the main role of **fibroblasts** in these lesions and the etiopathogenesis of this hyperplasia is discussed.

L9 ANSWER 47 OF 49 MEDLINE DUPLICATE 36
ACCESSION NUMBER: 86293204 MEDLINE
DOCUMENT NUMBER: 86293204 PubMed ID: 3017116
TITLE: Myopericarditis and enhanced dystrophic cardiac calcification in murine cytomegalovirus infection.
AUTHOR: Gang D L; Barrett L V; Wilson E J; Rubin R H; Medearis D N
CONTRACT NUMBER: HL 18646 (NHLBI)
SOURCE: AMERICAN JOURNAL OF PATHOLOGY, (1986 Aug) 124 (2) 207-15.
Journal code: 3RS; 0370502. ISSN: 0002-9440.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 198609
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19860917
AB . . . cells. Sublethal doses caused focal transient nonspecific chronic inflammation, followed months later by an increased frequency and extent of dystrophic **cardiac** calcification. When such latently infected hearts were heterotopically **transplanted** into uninfected animals which were then immunosuppressed (IS), a fatal generalized CMV infection followed. Cytomegalic inclusion-bearing endothelial, **fibroblastic** , and myocardial cells were seen in the intense inflammation found in hearts taken from mice 4 days after lethal inoculation and transplanted into uninfected mice, which were then IS. These findings may be relevant to human **cardiac transplantation** because they show that MCMV regularly causes **cardiac** infection with both acute and chronic consequences; chronic injury may follow a morphologically nonspecific myopericarditis which might not be attributed. . .

L9 ANSWER 48 OF 49 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1985:105484 BIOSIS
DOCUMENT NUMBER: BR28:105484
TITLE: THE PATHOGENESIS OF CYTOMEGALOVIRUS INVESTIGATED BY IN-SITU HYBRIDIZATION.
AUTHOR(S): MYERSON D; HACKMAN R C; MCDOUGALL J K
CORPORATE SOURCE: FRED HUTCHINSON CANCER RESEARCH CENTER, SEATTLE, WASHINGTON.
SOURCE: 74TH ANNUAL MEETING OF THE INTERNATIONAL ACADEMY OF PATHOLOGY (UNITED STATES-CANADIAN DIVISION), TORONTO, ONT., CANADA, MAR. 11-15, 1985. LAB INVEST, (1985) 52 (1), 46A.
CODEN: LAINAW. ISSN: 0023-6837.
DOCUMENT TYPE: Conference

FILE SEGMENT: BR; OLD
LANGUAGE: English
IT Miscellaneous Descriptors
ABSTRACT HUMAN BONE MARROW **TRANSPLANT** ENDOTHELIAL CELL INFECTION DIFFUSE FOCUS FORMATION EXOCRINE PANCREAS **CARDIAC** MYOCYTES LUNG PNEUMOCYTES SPLEEN LYMPH NODE **FIBROBLASTS** MESENCHYMAL CELLS

L9 ANSWER 49 OF 49 MEDLINE DUPLICATE 37
ACCESSION NUMBER: 83216205 MEDLINE
DOCUMENT NUMBER: 83216205 PubMed ID: 6854687
TITLE: Study of the periosteal and arachnoidal aspects of dura mater implanted surgically in the ventricular wall of the canine heart.
AUTHOR: Allen D J; Zacharias A; Didio L J; McGrath A J; Gentry E; Stolf N A; Caetano E; Armelin E; Zerbini E J
SOURCE: JOURNAL OF SUBMICROSCOPIC CYTOLOGY, (1983 Apr) 15 (2) 383-99.
Journal code: KAH; 0235232. ISSN: 0022-4782.
PUB. COUNTRY: Italy
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198307
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19980206
Entered Medline: 19830708
AB After surgical removal of a portion of the **cardiac** wall, homologous dura mater **cardiac grafts** were sutured to the margins of the incision in the sternocostal wall of the right ventricle of the canine heart. . . and studied by means of SEM and TEM. The primary objectives were to study morphological changes in the dura mater **grafts** used to repair the lesions or defects in the **cardiac** wall and to compare alterations in the periosteal and arachnoidal aspects of the dura mater grafts after being implanted for. . . also an increase in the number of cellular and fibrillar components within the implant. Large numbers of macrophages and active **fibroblasts** were visible at this time along with new collagen. At the sixth week of implantation, an abundance of active **fibroblasts** , the presence of normal collagen and a darkly staining material interpreted as recently synthesized connective tissue components, fibrin deposits and/or. . .

=> s EDGE A?/au and fibroblast?
L10 1 EDGE A?/AU AND FIBROBLAST?

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| NEWS 3 | Jan 29 | FSTA has been reloaded and moves to weekly updates |
| NEWS 4 | Feb 01 | DKILIT now produced by FIZ Karlsruhe and has a new update frequency |
| NEWS 5 | Feb 19 | Access via Tymnet and SprintNet Eliminated Effective 3/31/02 |
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| NEWS 7 | Mar 22 | TOXLIT no longer available |
| NEWS 8 | Mar 22 | TRCTHERMO no longer available |
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| NEWS 16 | Apr 22 | Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS |
| NEWS 17 | Apr 22 | BIOSIS Gene Names now available in TOXCENTER |
| NEWS 18 | Apr 22 | Federal Research in Progress (FEDRIP) now available |
| NEWS 19 | Jun 03 | New e-mail delivery for search results now available |
| NEWS 20 | Jun 10 | MEDLINE Reload |
| NEWS 21 | Jun 10 | PCTFULL has been reloaded |
| NEWS 22 | Jul 02 | FOREGE no longer contains STANDARDS file segment |
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=> s (myoblast? or satellite) (P) fibroblast?
L1 4004 (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?

=> s ( (skelet? (1N) myoblast?) or satellite) (P) fibroblast?
L2 1170 ((SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?

=> s l2 and lysine and laminin and (EGF or (epidermal (1N) growth (1N) factor))
L3 0 L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))

=> s l2 and laminin and (EGF or (epidermal (1N) growth (1N) factor))
L4 1 L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))

=> dis l4 ibib abs kwic

L4 ANSWER 1 OF 1 CAPLUS 
ACCESSION NUMBER: 1994:652330 CAPLUS
DOCUMENT NUMBER: 121:252330
TITLE: An experimental study on muscle regeneration. Formation of myotubes and environment
AUTHOR(S): Nakama, Sueo; Ooi, Yoshio; Mato, Masato
CORPORATE SOURCE: Dep. Orthop. Surg., Jichi Med. Sch., Tochigi, 329-04, Japan
SOURCE: Nippon Seikeigeka Gakkai Zasshi (1994), 68(7), 560-71
CODEN: NSGZA2; ISSN: 0021-5325
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The repair of injured muscle is completed by a proliferation and differentiation of myogenic cells and myotubes. However, little is known about the microenvironment in which the formation of myotubes can proceed in vivo. The authors employed the polyvinyl alc. (PVA) sponge model to investigate the milieu in which myotubes could be differentiated. Small pieces of PVA sponge were implanted after immersion in physiol. saline into the gastrocnemius of adult Wistar rats as controls. In the exptl. groups, before implantation, PVA were treated with basic **fibroblast** growth factor (**EGF**), type IV collagen, **laminin** and hydrocortisone. Newly-formed tissues within the PVA were examd. immuno- and histochem. under light- and electromicroscopy after 7-10 days implantation. FGF, collagen and **laminin** accelerated the migration of mesenchymal cells into the PVA compared with controls. Myotube formation could not be detected in either the exptl. or control groups. In the specimen treated with 10 mg/mL hydrocortisone, myotubes appeared frequently in the migrating cells of PVA. A small amt. of **fibroblasts**, macrophages and eosinophils were scattered around the myotubes and not clustered. They were provided with undefined basal lamina. Fibronectin and collagen fibers were also detected surrounding the myotubes. These findings suggested that, although the migration of **satellite** cells and the appearance of fibronectin are prerequisites for myotube formation, the most promising condition for myotube formation involved a suppression in the migration of the **fibroblasts**, macrophages and eosinophils. A certain concn. of steroids can therefore prep. a favorable microenvironment for this process.

AB The repair of injured muscle is completed by a proliferation and differentiation of myogenic cells and myotubes. However, little is known about the microenvironment in which the formation of myotubes can proceed in vivo. The authors employed the polyvinyl alc. (PVA) sponge model to investigate the milieu in which myotubes could be differentiated. Small pieces of PVA sponge were implanted after immersion in physiol. saline into the gastrocnemius of adult Wistar rats as controls. In the exptl. groups, before implantation, PVA were treated with basic **fibroblast** growth factor (**EGF**), type IV collagen, **laminin** and hydrocortisone. Newly-formed tissues within the PVA were examd. immuno- and histochem. under light- and electromicroscopy after 7-10 days implantation. FGF, collagen and **laminin** accelerated the migration of mesenchymal cells into the PVA compared with controls. Myotube formation could not be detected in either the exptl. or control groups. In the specimen treated with 10 mg/mL hydrocortisone, myotubes appeared frequently in the migrating cells of PVA. A small amt. of **fibroblasts**, macrophages and eosinophils were scattered around the myotubes and not clustered. They were provided with undefined basal lamina. Fibronectin and collagen fibers were also detected surrounding the myotubes. These findings suggested that, although the migration of **satellite** cells and the appearance of fibronectin are prerequisites for myotube formation, the most promising condition for myotube formation involved a suppression in the migration of the **fibroblasts**, macrophages and eosinophils. A certain concn. of steroids can therefore prep. a favorable microenvironment for this process.

IT **Laminins**
RL: BAC (Biological activity or effector, except adverse); BIOL

(Biological study)
(myotube formation and its microenvironment during muscle regeneration)

=> dis his

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FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1 4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2 1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3 0 S L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4 1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO

=> s l2 and collagen and (EGF OR (EPIDERMAL (1N) GROWTH Factor))
L5 2 L2 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR))

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PROCESSING COMPLETED FOR L5
L6 2 DUP REM L5 (0 DUPLICATES REMOVED)

=> s l6 not l4
L7 1 L6 NOT L4

=> dis l7 ibib abs kwic

L7 ANSWER 1 OF 1 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:359562 BIOSIS
DOCUMENT NUMBER: PREV200000359562
TITLE: Discoidin domain receptor 1 is activated independently of beta1 integrin.
AUTHOR(S): Vogel, Wolfgang (1); Brakebusch, Cord; Faessler, Reinhard; Alves, Frauke; Ruggiero, Florence; Pawson, Tony
CORPORATE SOURCE: (1) Georg-Speyer-Haus, Institute for Biomedical Research, J. W. Goethe-University Frankfurt, Paul-Ehrlich-Strasse 42-44, 60596, Frankfurt am Main Germany
SOURCE: Journal of Biological Chemistry, (February 25, 2000) Vol. 275, No. 8, pp. 5779-5784. print.
ISSN: 0021-9258.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Various types of **collagen** have been identified as potential ligands for the two mammalian discoidin domain receptor (DDR) tyrosine kinases, DDR1 and DDR2. It is presently unclear whether **collagen**-induced DDR receptor activation, which occurs with very slow kinetics, involves additional proteins with kinase activity or membrane-anchored proteins serving as coreceptors. In particular, the role of the **collagen**-binding integrins alpha1beta1 or alpha2beta1 in the DDR activation process is undefined. Here, we provide three lines of evidence suggesting that DDR1 signaling is distinct from integrin activation. First we demonstrate that the enzymatic activity of DDR1 is essential for receptor tyrosine phosphorylation. **Collagen**-induced DDR receptor autophosphorylation can be blocked either by a dominant negative mutant or by a preparation of recombinant extracellular domain. Second, we show DDR1 signals independent of the **epidermal growth factor** (**EGF**) receptor. In cells that endogenously express both DDR1 and the **EGF** receptor, stimulation with **EGF** does not induce DDR activation. Third, we detected full DDR1 activation after **collagen** stimulation in cells that have been treated with blocking antibodies for alpha2beta1 integrin or in cells with a targeted deletion of the beta1 integrin gene. Finally, we show that overexpression of dominant negative DDR1 in the myoblast cell line C2C12 blocks cellular differentiation and the formation of myofibers.
AB Various types of **collagen** have been identified as potential ligands for the two mammalian discoidin domain receptor (DDR) tyrosine kinases, DDR1 and DDR2. It is presently unclear whether **collagen**-induced DDR receptor activation, which occurs with very slow kinetics, involves additional proteins with kinase activity or membrane-anchored proteins serving as coreceptors. In particular, the role of the **collagen**-binding integrins alpha1beta1 or alpha2beta1 in the DDR activation process is undefined. Here, we provide three lines of evidence suggesting that. . . is distinct from integrin activation. First we demonstrate that the enzymatic activity of DDR1 is essential for receptor tyrosine phosphorylation. **Collagen**-induced DDR receptor autophosphorylation can be blocked either by a dominant negative mutant or by a preparation of recombinant extracellular domain. Second, we show DDR1 signals independent of the **epidermal growth factor** (**EGF**) receptor. In cells that endogenously express both DDR1 and the **EGF** receptor, stimulation with **EGF** does not induce DDR activation. Third, we detected full DDR1 activation after **collagen** stimulation in cells that have been treated with blocking antibodies for alpha2beta1 integrin or in cells with a targeted deletion. . .
IT Major Concepts
Biochemistry and Molecular Biophysics
IT Chemicals & Biochemicals
alpha-2-beta-1 integrin; beta-1 integrin; **collagen**; discoidin domain receptor 1; enzymatic activity, expression, signaling; **epidermal growth factor** receptor; beta-1 integrin gene
ORGN . . .
Mammalia, Vertebrata, Chordata, Animalia; Muridae; Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
293 cell line (Hominidae); human embryonic kidney **fibroblast** cells; C2C12 cell line (Muridae); mouse **skeletal** **myoblast** cells; T-47D cell line (Hominidae); human mammary carcinoma cells
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Nonhuman Mammals; Nonhuman Vertebrates;. . .

=> dis his

(FILE 'HOME' ENTERED AT 08:10:54 ON 09 JUL 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1 4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2 1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3 0 S L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4 1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO

```
L5            2 S L2   AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6            2 DUP REM L5 (0 DUPLICATES REMOVED)
L7            1 S L6 NOT L4

=> s ( (skelet? (1N) myoblast?) or satellite or (L (1N) cells)) (P) fibroblast?
L8         6089 ((SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P)
               FIBROBLAST?

=> s ( (skelet? (1N) myoblast?) or satellite ) (P) (fibroblast? or (L (1N) cell?))
   3 FILES SEARCHED...
L9         1256 ((SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR (L
               (1N) CELL?))

=> L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR)
L9 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR)
UNMATCHED LEFT PARENTHESIS 'AND (EGF'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))
L10           1 L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))


=> dis l10 ibib

L10  ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         1994:652330  CAPLUS
DOCUMENT NUMBER:          121:252330
TITLE:                    An experimental study on muscle regeneration.
                          Formation of myotubes and environment
AUTHOR(S):                Nakama, Sueo; Ooi, Yoshio; Mato, Masato
CORPORATE SOURCE:         Dep. Orthop. Surg., Jichi Med. Sch., Tochigi, 329-04,
                          Japan
SOURCE:                   Nippon Seikeigeka Gakkai Zasshi (1994), 68(7), 560-71
                          CODEN: NSGZA2; ISSN: 0021-5325
DOCUMENT TYPE:            Journal
LANGUAGE:                 Japanese


=> S 19   AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR))
L11           2 L9 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR))

=>

=> dis l11 1-2 ibib

L11  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:         1994:652330  CAPLUS
DOCUMENT NUMBER:          121:252330
TITLE:                    An experimental study on muscle regeneration.
                          Formation of myotubes and environment
AUTHOR(S):                Nakama, Sueo; Ooi, Yoshio; Mato, Masato
CORPORATE SOURCE:         Dep. Orthop. Surg., Jichi Med. Sch., Tochigi, 329-04,
                          Japan
SOURCE:                   Nippon Seikeigeka Gakkai Zasshi (1994), 68(7), 560-71
                          CODEN: NSGZA2; ISSN: 0021-5325
DOCUMENT TYPE:            Journal
LANGUAGE:                 Japanese

L11  ANSWER 2 OF 2  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER:    2000:359562  BIOSIS
DOCUMENT NUMBER:     PREV200000359562
TITLE:               Discoidin domain receptor 1 is activated independently of
                     beta1 integrin.
AUTHOR(S):           Vogel, Wolfgang (1); Brakebusch, Cord; Faessler, Reinhard;
                     Alves, Frauke; Ruggiero, Florence; Pawson, Tony
CORPORATE SOURCE:    (1) Georg-Speyer-Haus, Institute for Biomedical Research,
                     J. W. Goethe-University Frankfurt, Paul-Ehrlich-Strasse
                     42-44, 60596, Frankfurt am Main Germany
SOURCE:              Journal of Biological Chemistry, (February 25, 2000) Vol.
                     275, No. 8, pp. 5779-5784. print.
                     ISSN: 0021-9258.
DOCUMENT TYPE:       Article
LANGUAGE:            English
SUMMARY LANGUAGE:    English


=> dis his

     (FILE 'HOME' ENTERED AT 08:10:54 ON 09 JUL 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1         4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2         1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3            0 S L2 AND  LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4            1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L5            2 S L2   AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6            2 DUP REM L5 (0 DUPLICATES REMOVED)
L7            1 S L6 NOT L4
L8         6089 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P
L9         1256 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR
L10           1 S L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L11           2 S L9    AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR

=> s l9 and (cardiac or heart) and transplant?
L12          19 L9 AND (CARDIAC OR HEART) AND TRANSPLANT?

=> dup rem l12
PROCESSING COMPLETED FOR L12
L13          10 DUP REM L12 (9 DUPLICATES REMOVED)

=> dis l13 1-10 ibib abs

L13  ANSWER 1 OF 10     MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:    2002229838     MEDLINE
DOCUMENT NUMBER:     21964173    PubMed ID: 11967271
TITLE:               The role of stem cells in skeletal and cardiac
                     muscle repair.
```

AUTHOR: Grounds Miranda D; White Jason D; Rosenthal Nadia; Bogoyevitch Marie A
CORPORATE SOURCE: Department of Anatomy & Human Biology, The University of Western Australia, Crawley, Western Australia.. mgrounds@anhb.uwa.edu.au
SOURCE: JOURNAL OF HISTOCHEMISTRY AND CYTOCHEMISTRY, (2002 May) 50 (5) 589-610. Ref: 223
Journal code: 9815334. ISSN: 0022-1554.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200206
ENTRY DATE: Entered STN: 20020423
Last Updated on STN: 20020611
Entered Medline: 20020610

AB In postnatal muscle, skeletal muscle precursors (myoblasts) can be derived from **satellite** cells (reserve cells located on the surface of mature myofibers) or from cells lying beyond the myofiber, e.g., interstitial connective tissue or bone marrow. Both of these classes of cells may have stem cell properties. In addition, the heretical idea that post-mitotic myonuclei lying within mature myofibers might be able to re-form myoblasts or stem cells is examined and related to recent observations for similar post-mitotic cardiomyocytes. In adult **hearts** (which previously were not considered capable of repair), the role of replicating endogenous cardiomyocytes and the recruitment of other (stem) cells into cardiomyocytes for new **cardiac** muscle formation has recently attracted much attention. The relative contribution of these various sources of precursor cells in postnatal muscles and the factors that may enhance stem cell participation in the formation of new skeletal and **cardiac** muscle in vivo are the focus of this review. We concluded that, although many endogenous cell types can be converted to skeletal muscle, the contribution of non-myogenic cells to the formation of new postnatal skeletal muscle in vivo appears to be negligible. Whether the recruitment of such cells to the myogenic lineage can be significantly enhanced by specific inducers and the appropriate microenvironment is a current topic of intense interest. However, dermal **fibroblasts** appear promising as a realistic alternative source of exogenous myoblasts for **transplantation** purposes. For **heart** muscle, experiments showing the participation of bone marrow-derived stem cells and endothelial cells in the repair of damaged **cardiac** muscle are encouraging.

L13 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
ACCESSION NUMBER: 2000:547368 CAPLUS
DOCUMENT NUMBER: 133:140194
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. Ser. No. 863,882.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| JP 2002518006 | T2 | 20020625 | JP 2000-554845 | 19990618 |

PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
US 1998-99994 A2 19980619
WO 1999-US13850 W 19990618

AB A method is provided for forming a graft in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The grafts are esp. useful in treating scar tissue on the **heart**.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 3 OF 10 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:192507 BIOSIS
DOCUMENT NUMBER: PREV200100192507
TITLE: **Transplants** for myocardial scars and methods and cellular preparations.
AUTHOR(S): Mickle, Donald A. G. (1); Li, Ren-Ke; Weisel, Richard D.
CORPORATE SOURCE: (1) 7 McGillivary Ave., Toronto, Ont. Canada
PATENT INFORMATION: US 6110459 August 29, 2000
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Aug. 29, 2000) Vol. 1237, No. 5, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

AB A method is provided for forming a graft in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The grafts are especially useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such grafts.

L13 ANSWER 4 OF 10 MEDLINE DUPLICATE 3

ACCESSION NUMBER: 2001064096 MEDLINE
DOCUMENT NUMBER: 20426151 PubMed ID: 10972335
TITLE: Comparison of benefits on myocardial performance of cellular cardiomyoplasty with **skeletal myoblasts** and **fibroblasts**.
AUTHOR: Hutcheson K A; Atkins B Z; Hueman M T; Hopkins M B; Glower D D; Taylor D A
CORPORATE SOURCE: Department of Medicine, Duke University Medical Center, Durham, NC 27710, USA.
CONTRACT NUMBER: 1R01 HL63346-01 (NHLBI)
2R01 HL5798-02 (NHLBI)
SOURCE: CELL TRANSPLANTATION, (2000 May-Jun) 9 (3) 359-68.
Journal code: 9208854. ISSN: 0963-6897.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001222

AB Cellular cardiomyoplasty (CCM), or introduction of immature cells into terminally injured **heart**, can mediate repair of chronically injured myocardium. Several different cell types, ranging from embryonic stem cells to autologous **skeletal myoblasts**, have been successfully propagated within damaged **heart** and shown to improve myocardial performance. However, it is unclear if the functional advantages associated with CCM depend upon the use of myogenic cells or if similar results can be seen with other cell types. Thus, we compared indices of regional contractile (systolic) and diastolic myocardial performance following **transplantation** of either autologous **skeletal myoblasts** (Mb) or dermal **fibroblasts** (Fb) into chronically injured rabbit **heart**. In vivo left ventricular (LV) pressure (P) and regional segment length (SL) were determined in 15 rabbits by micromanometry and sonomicrometry 1 week following LV cryoinjury (CRYO) and again 3 weeks after autologous skeletal Mb or dermal Fb **transplantation**. Quantification of systolic performance was based on the linear regression of regional stroke work and end-diastolic (ED) SL. Regional diastolic properties were assessed using the curvilinear relationships between LVEDP and strain (epsilon) as well as LVEDP and EDSL. At study termination, cellular engraftment was characterized histologically in a blinded fashion. Indices of diastolic performance were improved following CCM with either Mb or Fb. However, only Mb **transplantation** improved systolic performance; Fb transfer actually resulted in a significant decline in systolic performance. These data suggest that both contractile and noncontractile cells can improve regional material properties or structural integrity of terminally injured **heart**, as reflected by improvements in diastolic performance. However, only Mb improved systolic performance in the damaged region, supporting the role of myogenic cells in augmenting contraction. Further studies are needed to define the mechanism by which these effects occur and to evaluate the long-term safety and efficacy of CCM with any cell type.

L13 ANSWER 5 OF 10 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2000263300 EMBASE
TITLE: Cell therapy for ventricular dysfunction.
AUTHOR: Sarjeant J.M.; Yau T.M.; Li R.-K.; Wiesel R.D.; Mickle D.A.G.
CORPORATE SOURCE: Dr. T.M. Yau, Division of Cardiovascular Surgery, Toronto General Hospital, 200 Elizabeth Street, Toronto, Ont. M5G 2C4, Canada
SOURCE: Cardiovascular Reviews and Reports, (2000) 21/6 (287-292).
Refs: 25
ISSN: 0197-3118 CODEN: CRRPD4
COUNTRY: United States
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
026 Immunology, Serology and Transplantation
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Current therapies for severe ventricular dysfunction have limited efficacy. Novel techniques to repopulate an infarcted **heart** with myocytes include stimulation of cardiomyocyte proliferation and transformation of myocardial **fibroblasts** into myocytes, but these techniques are in the very early stages of investigation. Cell **transplantation** may be the most promising new potential therapy for postinfarction ventricular dysfunction. **Transplantation** of **satellite** cells, smooth muscle cells, cardiomyocytes, and other cell types have been performed in animals. The effect of **skeletal myoblast transplantation** on **heart** function remains unclear. Smooth muscle cells engraft in a myocardial scar and improve **heart** function, but do not contract synchronously with native myocardium. **Transplanted** cardiomyocytes improve infarcted **heart** function, but only autotransplantation avoids the issues of immunosuppression, rejection, and zoonoses. Ongoing studies of autologous **heart** cell **transplantation** are yielding and encourage results that may lead to clinical application for patients with **heart** failure within the next few years. (C) 2000 by Cardiovascular Reviews and Reports.

L13 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:811354 CAPLUS
DOCUMENT NUMBER: 132:54829
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Le, Ren-Ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,

TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

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| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 | |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 | |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 | |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
| JP 2002518006 | T2 | 20020625 | JP 2000-554845 | 19990618 | |

PRIORITY APPLN. INFO.: US 1998-99994 A2 19980619
US 1997-863882 A2 19970528
WO 1999-US13850 W 19990618

AB A method is provided for forming a graft in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The grafts are esp. useful in treating scar tissue on the **heart**.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 10 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 1999199461 MEDLINE
DOCUMENT NUMBER: 99199461 PubMed ID: 10099688
TITLE: Myoblast cell grafting into **heart** muscle: cellular biology and potential applications.
AUTHOR: Kessler P D; Byrne B J
CORPORATE SOURCE: Peter Belfer Cardiac Laboratory, Johns Hopkins University School of Medicine, Baltimore, Maryland 21205, USA.. pkessler@welchlink.welch.jhu.edu
SOURCE: ANNUAL REVIEW OF PHYSIOLOGY, (1999) 61 219-42. Ref: 165
Journal code: 0370600. ISSN: 0066-4278.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199905
ENTRY DATE: Entered STN: 19990607
Last Updated on STN: 19990607
Entered Medline: 19990526

AB This review surveys a wide range of cellular and molecular approaches to strengthening the injured or weakened **heart**, focusing on strategies to replace dysfunctional, necrotic, or apoptotic cardiomyocytes with new cells of mesodermal origin. A variety of cell types, including myogenic cell lines, adult **skeletal myoblasts**, immoratalized atrial cells, embryonic and adult cardiomyocytes, embryonic stem cells, tetratoma cells, genetically altered **fibroblasts**, smooth muscle cells, and bone marrow-derived cells have all been proposed as useful cells in **cardiac** repair and may have the capacity to perform **cardiac** work. We focus on the implantation of mesodermally derived cells, the best developed of the options. We review the developmental and cell biology that have stimulated these studies, examine the limitations of current knowledge, and identify challenges for the future, which we believe are considerable.

L13 ANSWER 8 OF 10 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 1999184340 MEDLINE
DOCUMENT NUMBER: 99184340 PubMed ID: 10086536
TITLE: Intracardiac **transplantation** of skeletal myoblasts yields two populations of striated cells in situ.
AUTHOR: Atkins B Z; Lewis C W; Kraus W E; Hutcheson K A; Glower D D; Taylor D A
CORPORATE SOURCE: Department of Medicine, Duke University Medical Center, Durham, North Carolina 27710, USA.
SOURCE: ANNALS OF THORACIC SURGERY, (1999 Jan) 67 (1) 124-9.
Journal code: 15030100R. ISSN: 0003-4975.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199904
ENTRY DATE: Entered STN: 19990426
Last Updated on STN: 19990426
Entered Medline: 19990414

AB BACKGROUND: Adult **heart** lacks stem cells and cannot effectively regenerate. In contrast, skeletal muscle is constantly undergoing repair. We proposed to **transplant** immature **skeletal myoblasts** into injured myocardium. METHODS: Approximately 7x10(6) soleus **skeletal myoblasts** were expanded in vitro from adult New Zealand White rabbits (n = 23) whose posterior left ventricle was cryoinjured to create a transmural lesion. Autologous myoblasts (n = 18) or saline (n = 5) was **transplanted** into the central cryolesion at the time of injury (n = 6) or 1 week later (n = 12). **Hearts** were harvested 2 weeks after injection. RESULTS: Myoblast transfer did not incur further morbidity. After cryolesion, grossly, a 1.6-cm epicardial hemorrhagic lesion could be seen. Histologically, the transmural lesion contained inflammatory cells and active scarring but no viable cardiomyocytes. Electron microscopy demonstrated a predominance of collagen and **fibroblasts**. Nine **hearts** contained multinucleated cells within the cryolesion that covered approximately 75% of the central cryolesion in 17% of animals. Immunohistochemical analysis confirmed their skeletal muscle origin. At the periphery of the lesion, isolated clusters of nonskeletal muscle cells could be visualized (n = 12) that resembled immature cardiocytes. CONCLUSIONS: Autologous **skeletal myoblasts** can regenerate viable striated tissue within damaged myocardium. Myoblast transfer warrants further investigation as a new method for improving myocardial performance within infarcted myocardium.

L13 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:795115 CAPLUS
DOCUMENT NUMBER: 130:43430
TITLE: **Transplants** for myocardial scars and method and cellular preparations therefor
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9854301 | A2 | 19981203 | WO 1998-CA520 | 19980528 |
| WO 9854301 | A3 | 19990401 | | |

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

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|---|---|---|---|---|
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| AU 9876331 | A1 | 19981230 | AU 1998-76331 | 19980528 |
| EP 985028 | A2 | 20000315 | EP 1998-923950 | 19980528 |

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

| | | | | |
|---|---|---|---|---|
| JP 2002501513 | T2 | 20020115 | JP 1999-500040 | 19980528 |

PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
WO 1998-CA520 W 19980528

AB A method is provided for forming a graft in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and **skeletal myoblasts**. The grafts are esp. useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such grafts.

L13 ANSWER 10 OF 10 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96140240 EMBASE
DOCUMENT NUMBER: 1996140240
TITLE: Preparation of hybrid muscular tissue composed of skeletal muscle cells and collagen.
AUTHOR: Okano T.; Oka T.; Matsuda T.
CORPORATE SOURCE: Department of Biomedical Engineering, Natl. Cardiovascular Ctr. Res. Inst., 5-7-1 Fujishirodai,Suita, Osaka 565, Japan
SOURCE: Japanese Journal of Artificial Organs, (1996) 25/1 (197-203).
ISSN: 0300-0818 CODEN: JNZKA7
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese
AB We devised disc-type, polyester mesh-enforced sheet-type and tubular hybrid tissues, in which myoblasts (Mbs) of skeletal muscle cells (SKCs) were embedded in type I collagen gels and then differentiated into muscle fibers upon culture. Primary culture of **satellite** cells of SKCs, harvested from thigh muscle of newborn and fetal rat, failed due to contaminated **fibroblasts** which dominated at a prolonged culture period. On the other hand, hybrid muscular tissues were prepared using Mbs (C2C12 mouse cell line) and collagen. A cold mixed solution of the cells and type I collagen was poured into three different types of molds and were kept at 37.degree.C in an incubator to form SKCs-embedded gels. Polyester mesh was incorporated into a sheet-type gel. Tubular tissue was prepared by pouring a mixed solution into a tubular mold of an outer sheath and a mandrel and subsequently by culturing after deassembling the outer sheath. Mbs were cultured in 20% FCS-DMEM for first 4 days and then in 22% horse serum-DMEM for later 10 days. Transparent fragile gels are prepared were time-dependently shrunk to form opaque gels, irrespective of the model. At 14 days-incubation, proliferated Mbs fused and differentiated to form multinucleated muscle fibers. Hybrid tissue became time-dependently dense and both collagen and cells were circumferentially oriented. We discuss the possibility of use as a **transplantation** vehicle for reconstruction of damaged and diseased skeletal and **cardiac** muscle tissues.

=> dis his

(FILE 'HOME' ENTERED AT 08:10:54 ON 09 JUL 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1 4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2 1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3 0 S L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4 1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L5 2 S L2 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6 2 DUP REM L5 (0 DUPLICATES REMOVED)
L7 1 S L6 NOT L4
L8 6089 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P
L9 1256 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR
L10 1 S L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L11 2 S L9 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR
L12 19 S L9 AND (CARDIAC OR HEART) AND TRANSPLANT?
L13 10 DUP REM L12 (9 DUPLICATES REMOVED)

=> s GATA? and l9
L14 4 GATA? AND L9

=> dup rem l14
PROCESSING COMPLETED FOR L14
L15 1 DUP REM L14 (3 DUPLICATES REMOVED)

=> dis l15 ibib abs

L15 ANSWER 1 OF 1 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 96394366 MEDLINE
DOCUMENT NUMBER: 96394366 PubMed ID: 8798472
TITLE: Identification and characterization of the cell type-specific and developmentally regulated alpha7 integrin gene promoter.
AUTHOR: Ziober B L; Kramer R H
CORPORATE SOURCE: Department of Stomatology, University of California, San Francisco, California 94143-0512, USA.
CONTRACT NUMBER: CA51884 (NCI)
DE10306 (NIDCR)
DE10564 (NIDCR)
+

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Sep 13) 271 (37) 22915-22.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U60419
ENTRY MONTH: 199611
ENTRY DATE: Entered STN: 19961219
Last Updated on STN: 20000303
Entered Medline: 19961107

AB Expression of alpha7 is mainly confined to skeletal and cardiac muscle in which it appears to be the major laminin-binding integrin. When myoblasts differentiate to myotubes, alpha7 mRNA and protein expression is up-regulated. To explore the mechanisms involved in the tissue-specific and developmentally regulated expression of alpha7, we isolated and characterized a genomic clone containing approximately 2.8 kilobase pairs (kb) of the 5'-flanking region of the murine alpha7 gene. The 5'-flanking region lacks both TATA and CCAAT boxes but contains five putative Sp1 binding sites located in a CpG island. Two transcription start sites, located near an initiator-like sequence, are 176 and 170 base pairs upstream of the translation start site. There are numerous binding sites for developmental and cell type-specific transcription factors, including AP-1, AP-2, **GATA**, and several AT-rich sites. There are also eight consensus E-boxes that bind the basic helix-loop-helix family of muscle-specific transcription factors. The approximately 2.8-kb 5'-flanking region was an active promoter in C2C12 **skeletal myoblasts** and exhibited increased expression upon conversion to myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma epithelial cell line that does not express alpha7. Deletion analysis identified both positive and negative regulatory elements within the approximately 2.8-kb fragment. In 10T1/2 **fibroblasts** the approximately 2.8-kb alpha7 promoter was trans-activated by the myogenic basic helix-loop-helix proteins myogenin and MyoD but not by MRF4 and myf5. These results suggest that muscle-specific transcription factors play a role in regulating the cell-type expression of the alpha7 gene during development.

=> s ( myoblast? or satellite ) (P) (fibroblast? or (L (1N) cell?))
3 FILES SEARCHED...
L16 4184 (MYOBLAST? OR SATELLITE ) (P) (FIBROBLAST? OR (L (1N) CELL?))

=> s l16 and LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))
L17 8 L16 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTOR))

=> s l16 and COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR))
L18 8 L16 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR))

=> s l17 or l18
L19 14 L17 OR L18

=> dup rem l19
PROCESSING COMPLETED FOR L19
L20 8 DUP REM L19 (6 DUPLICATES REMOVED)

=> dis l20 1-8 ibib abs kwic

L20 ANSWER 1 OF 8 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:359562 BIOSIS
DOCUMENT NUMBER: PREV200000359562
TITLE: Discoidin domain receptor 1 is activated independently of beta1 integrin.
AUTHOR(S): Vogel, Wolfgang (1); Brakebusch, Cord; Faessler, Reinhard; Alves, Frauke; Ruggiero, Florence; Pawson, Tony
CORPORATE SOURCE: (1) Georg-Speyer-Haus, Institute for Biomedical Research, J. W. Goethe-University Frankfurt, Paul-Ehrlich-Strasse 42-44, 60596, Frankfurt am Main Germany
SOURCE: Journal of Biological Chemistry, (February 25, 2000) Vol. 275, No. 8, pp. 5779-5784. print.
ISSN: 0021-9258.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Various types of **collagen** have been identified as potential ligands for the two mammalian discoidin domain receptor (DDR) tyrosine kinases, DDR1 and DDR2. It is presently unclear whether **collagen** -induced DDR receptor activation, which occurs with very slow kinetics, involves additional proteins with kinase activity or membrane-anchored proteins serving as coreceptors. In particular, the role of the **collagen**-binding integrins alpha1beta1 or alpha2beta1 in the DDR activation process is undefined. Here, we provide three lines of evidence suggesting that DDR1 signaling is distinct from integrin activation. First we demonstrate that the enzymatic activity of DDR1 is essential for receptor tyrosine phosphorylation. **Collagen**-induced DDR receptor autophosphorylation can be blocked either by a dominant negative mutant or by a preparation of recombinant extracellular domain. Second, we show DDR1 signals independent of the **epidermal growth factor** (**EGF**) receptor. In cells that endogenously express both DDR1 and the **EGF** receptor, stimulation with **EGF** does not induce DDR activation. Third, we detected full DDR1 activation after **collagen** stimulation in cells that have been treated with blocking antibodies for alpha2beta1 integrin or in cells with a targeted deletion of the beta1 integrin gene. Finally, we show that overexpression of dominant negative DDR1 in the myoblast cell line C2C12 blocks cellular differentiation and the formation of myofibers.

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express both DDR1 and the **EGF** receptor, stimulation with **EGF** does not induce DDR activation. Third, we detected full DDR1 activation after **collagen** stimulation in cells that have been treated with blocking antibodies for alpha2beta1 integrin or in cells with a targeted deletion. . .

IT Major Concepts
Biochemistry and Molecular Biophysics

IT Chemicals & Biochemicals
alpha-2-beta-1 integrin; beta-1 integrin; **collagen**; discoidin domain receptor 1: enzymatic activity, expression, signaling; **epidermal growth factor** receptor; beta-1 integrin gene

ORGN . . .
Mammalia, Vertebrata, Chordata, Animalia; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
293 cell line (Hominidae): human embryonic kidney **fibroblast** cells; C2C12 cell line (Muridae): mouse skeletal **myoblast** cells; T-47D cell line (Hominidae): human mammary carcinoma cells

ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Nonhuman Mammals; Nonhuman Vertebrates;. . .

L20 ANSWER 2 OF 8 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000420996 MEDLINE
DOCUMENT NUMBER: 20286541 PubMed ID: 10825303
TITLE: Meltrin gamma(ADAM-9) mediates cellular adhesion through alpha(6)beta(1 )integrin, leading to a marked induction of fibroblast cell motility.
AUTHOR: Nath D; Slocombe P M; Webster A; Stephens P E; Docherty A J; Murphy G
CORPORATE SOURCE: School of Biological Sciences, University of East Anglia, Norwich, NR4 7TJ, UK.
SOURCE: JOURNAL OF CELL SCIENCE, (2000 Jun) 113 ( Pt 12) 2319-28. Journal code: 0052457. ISSN: 0021-9533.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000915
Last Updated on STN: 20000915
Entered Medline: 20000901

AB The ADAMs (A Disintegrin and Metalloprotease Domains) are a family of membrane-anchored proteins that play a role in fertilisation, **myoblast** fusion and ectodomain shedding of cell surface proteins. Meltrin gamma (ADAM-9) is a widely expressed member of this family and is involved in the shedding of heparin binding **epidermal growth factor**. Here we report that meltrin gamma can function as a cell adhesion molecule via its disintegrin domain. Using solid-phase binding assays and antibody inhibition experiments, we demonstrate that a murine meltrin gamma-Fc (Mel gamma -Fc) fusion protein binds to the integrin alpha(6)beta(1) on the surface of **fibroblast** cell lines, HT1080 and Wehi 164 in a specific manner. Since alpha(6)beta(1) is important for the motility of several cell types on **laminin**, cell migration studies using time-lapse video microscopy were performed. Cells adhering to Mel gamma-Fc displayed a rounded morphology and a marked increase (eight- to tenfold) in their motility compared to that on **laminin**. Furthermore, the p160 ROCK kinase inhibitor Y-27632 specifically reduced the migration of cells on meltrin gamma but had no effect on migration of cells on **laminin**, whilst the general tyrosine phoshorylation inhibitor, genistein, inhibited cell migration on both substrates. These results together suggest that meltrin gamma may play a role in regulating the motility of cells by binding to alpha(6)beta(1) integrin and this may be important during a variety of biological and pathological processes.

AB The ADAMs (A Disintegrin and Metalloprotease Domains) are a family of membrane-anchored proteins that play a role in fertilisation, **myoblast** fusion and ectodomain shedding of cell surface proteins. Meltrin gamma (ADAM-9) is a widely expressed member of this family and is involved in the shedding of heparin binding **epidermal growth factor**. Here we report that meltrin gamma can function as a cell adhesion molecule via its disintegrin domain. Using solid-phase binding. . . demonstrate that a murine meltrin gamma-Fc (Mel gamma -Fc) fusion protein binds to the integrin alpha(6)beta(1) on the surface of **fibroblast** cell lines, HT1080 and Wehi 164 in a specific manner. Since alpha(6)beta(1) is important for the motility of several cell types on **laminin**, cell migration studies using time-lapse video microscopy were performed. Cells adhering to Mel gamma-Fc displayed a rounded morphology and a marked increase (eight- to tenfold) in their motility compared to that on **laminin**. Furthermore, the p160 ROCK kinase inhibitor Y-27632 specifically reduced the migration of cells on meltrin gamma but had no effect on migration of cells on **laminin**, whilst the general tyrosine phoshorylation inhibitor, genistein, inhibited cell migration on both substrates. These results together suggest that meltrin gamma. . .

L20 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:303088 BIOSIS
DOCUMENT NUMBER: PREV200100303088
TITLE: Endothelial cells generated from human marrow derived mesenchymal stem cells (MSC.
AUTHOR(S): Reyes, Morayma (1); Verfaillie, Catherine M. (1)
CORPORATE SOURCE: (1) Medicine, U. of Minnesota, Minneapolis, MN USA
SOURCE: Blood, (November 16, 2000) Vol. 96, No. 11 Part 1, pp. 530a. print.
Meeting Info.: 42nd Annual Meeting of the American Society of Hematology San Francisco, California, USA December 01-05, 2000 American Society of Hematology
. ISSN: 0006-4971.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

AB MSC were selected by depletion of CD45+ and Glycophorin-A (GlyA)+ cells from human marrow and cultured on fibronectin (FN) in LG-DMEM, linoleic acid, BSA, insulin, selenium, transferrin, ascorbic acid, dexamethasone and **epidermal growth factor** and platelet derived growth factor. We added either no serum and insulin-like growth factor, or 2% or 10% FCS. Undifferentiated MSC did not express CD31, CD34, CD36, CD38, CD44, CD45, CD50, CD62E, CD62P, HLA-DR and HLA-class-I, Muc18, cKit, or Tie/Tek, expressed low levels of B2-microglobulin and high levels of CD10, CD13, CD49b, CD49e, CDw90, and Flk1. MSC cultured using this method differentiate into osteoblasts, chondrocytes, **fibroblasts**

, adipocytes, stromal cells, and **myoblasts**. As MSC express FLK1 we hypothesized that VEGF might trigger differentiation to endothelial cells. MSC, that were 50 or 100% confluent, were cultured on FN with 10ng/mL VEGF in serum free medium, and differentiation to endothelium analyzed by FACS, immunohistochemical (IH) methods, and Western blot after 2, 5, 7, 9, 15 and 19 days. MSC cultured with VEGF at 50% confluency became confluent after 2 days. FACS analysis and IH examination showed that VEGF treated MSC expressed significantly higher levels of Flk1 and Flt1 after 7 days, and expressed vWF and CD34 from 9 day on. Expression of these markers was higher when differentiation was induced at 100% confluency. After 15 days cells expressed Tie, Tek, PECAM, P-selectin, E-selectin, and CD36. When MSC were subcultured after 9 day exposure to VEGF (at which time they expressed CD34 and vWF), further cell expansion (12 cell doublings) could be obtained, indicating that committed endothelial cells could continue to proliferate. MSC could differentiate to endothelium when they had been cultured either with 2% FCS or cultures without FCS + IGF, but not when they had been cultured with 10% FCS. However, presence of serum during the differentiation culture prevented endothelial differentiation. VEGF-treated cells plated on FN produced **collagen** type IV and **laminin**, two major proteins of basement membrane. When MSC were plated on **collagen** type IV or **laminin** rather than FN in VEGF containing serum free medium, vascular tube formation was seen at day 19. This is the first description of endothelial differentiation from MSC. As MSC which can easily be recovered from post-natal marrow, can be transduced and ex vivo expanded they constitute an easy accessible source for in vitro study of angiogenesis and for treatment of vascular diseases.

AB . . from human marrow and cultured on fibronectin (FN) in LG-DMEM, linoleic acid, BSA, insulin, selenium, transferrin, ascorbic acid, dexamethasone and **epidermal growth factor** and platelet derived growth factor. We added either no serum and insulin-like growth factor, or 2% or 10% FCS. Undifferentiated. . . and high levels of CD10, CD13, CD49b, CD49e, CDw90, and Flk1. MSC cultured using this method differentiate into osteoblasts, chondrocytes, **fibroblasts**, adipocytes, stromal cells, and **myoblasts**. As MSC express FLK1 we hypothesized that VEGF might trigger differentiation to endothelial cells. MSC, that were 50 or 100%. . . with 10% FCS. However, presence of serum during the differentiation culture prevented endothelial differentiation. VEGF-treated cells plated on FN produced **collagen** type IV and **laminin**, two major proteins of basement membrane. When MSC were plated on **collagen** type IV or **laminin** rather than FN in VEGF containing serum free medium, vascular tube formation was seen at day 19. This is the. . .

IT . . .

IT Parts, Structures, & Systems of Organisms
adipocytes; bone marrow: blood and lymphatics, immune system; chondrocytes: skeletal system; endothelial cells; **fibroblasts**; mesenchymal stem cells [MSC]: differentiation, embryonic structure; **myoblasts**: muscular system; osteoblasts: skeletal system; serum: blood and lymphatics; stromal cells

IT Chemicals & Biochemicals
CD34; CD36; E-selectin; FCS [fetal calf serum]; Flk1; Flt1; P-selectin; PECAM; Tek; Tie; VEGF [vascular endothelial growth factor]; **collagen** type IV; fibronectin [FN]; insulin-like growth factor [IGF]; **laminin**; vWF

L20 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:737527 CAPLUS
DOCUMENT NUMBER: 133:330030
TITLE: The use of growth factors, gene therapy and tissue engineering to improve meniscal healing
AUTHOR(S): Kasemkijwattana, Channarong; Menetrey, Jacques; Goto, Hideyuki; Niyibizi, Christopher; Fu, Freddie H.; Huard, Johnny
CORPORATE SOURCE: Growth and Development Laboratory, Musculoskeletal Research Center, Department of Orthopaedic Surgery, Children's Hospital of Pittsburgh and University of Pittsburgh, Pittsburgh, PA, 15213, USA
SOURCE: Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2000), C13(1-2), 19-28
CODEN: MSCEEE; ISSN: 0928-4931
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The meniscus plays important roles in the knee joint, including load transmission at the tibiofemoral articulation, shock absorption, lubrication, and stabilization of the knee joint, though its healing capacity remains limited. Meniscal healing requires the proliferation of meniscal fibrochondrocytes from either an intrinsic source at the site of injury or an extrinsic source from the blood supply or synovium. The authors have characterized the effects of various doses of nine growth factors on the meniscal fibrochondrocyte proliferation and **collagen** and non-**collagen** synthesis, and identified **epidermal growth factor** (**EGF**), transforming growth factor alpha (TGF.alpha.), basic **fibroblast** growth factor (bFGF) and platelet derived growth factor AB (PDGF-AB) as candidate mols. to improve meniscal healing. The direct administration of the human recombinant growth factor protein is likely to be limited by the short biol. half-life of these proteins and the rapid clearance of the injected proteins. The authors have therefore evaluated the feasibility of gene therapy and tissue engineering to deliver marker genes into the meniscus and found that direct and **myoblast** mediated ex vivo gene transfer can be used to deliver high levels and persistent expression of these growth factors into the injured meniscus. This study will help in the development of strategies to improve meniscal healing using new innovative technologies such as gene therapy approaches.

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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IT **Collagens**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(type I; growth factor administration, gene therapy and tissue engineering to improve meniscal healing in rabbit knee joints following injury)

IT **Collagens**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(type V; growth factor administration, gene therapy and tissue engineering to improve meniscal healing in rabbit knee joints following injury)

IT **Collagens**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(type VI; growth factor administration, gene therapy and tissue engineering to improve meniscal healing in rabbit knee joints following injury)

IT 9061-61-4, Nerve growth factor 62229-50-9, **Epidermal growth factor** 67763-96-6, Insulin-like growth factor 1 106096-92-8, Acidic fibroblast growth factor 106096-93-9, Basic fibroblast growth factor
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(growth factor administration, gene therapy and tissue engineering to improve meniscal healing in rabbit knee joints following injury)

L20 ANSWER 5 OF 8 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1999068537 EMBASE
TITLE: Plastic adherent stromal cells from the bone marrow of commonly used strains of inbred mice: Variations in yield, growth, and differentiation.
AUTHOR: Phinney D.G.; Kopen G.; Isaacson R.L.; Prockop D.J.
CORPORATE SOURCE: D.G. Phinney, 10314 New College Building, Mailstop 421, 245 N. 15th Street, Philadelphia, PA 19102, United States. Phinney@auhs.edu
SOURCE: Journal of Cellular Biochemistry, (15 Mar 1999) 72/4 (570-585).
Refs: 39
ISSN: 0730-2312 CODEN: JCEBD5
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Bone marrow stroma contains a unique cell population, referred to as marrow stromal cells (MSCs), capable of differentiating along multiple mesenchymal cell lineages. A standard liquid culture system has been developed to isolate MSCs from whole marrow by their adherence to plastic wherein the cells grow as clonal populations derived from a single precursor termed the colony-forming-unit **fibroblast** (CFU-F). Using this liquid culture system, we demonstrate that the relative abundance of MSCs in the bone marrow of five commonly used inbred strains of mice varies as much as 10-fold, and that the cells also exhibit markedly disparate levels of alkaline phosphatase expression, an early marker of osteoblast differentiation. For each strain examined, the method of isolating MSCs by plastic adherence yields a heterogeneous cell population. These plastic adherent cells also exhibit widely varying growth kinetics between the different strains. Importantly, of three inbred strains commonly used to prepare transgenic mice that we examined, only cells derived from FVB/N marrow readily expand in culture. Further analysis of cultures derived from FVB/N marrow showed that most plastic adherent cells express CD11b and CD45, epitopes of lymphohematopoietic cells. The later consists of both pre-B-cell-progenitors, granulocytic and monocytic precursors, and macrophages. However, a subpopulation of the MSCs appear to represent bona fide mesenchymal progenitors, as cells can be induced to differentiate into osteoblasts and adipocytes after exposure to dexamethasone and into **myoblasts** after exposure to amphotericin B. Our results point to significant strain differences in the properties of MSCs and indicate that standard methods cannot be applied to murine bone marrow to isolate relatively pure populations of MSCs.

AB . . . by their adherence to plastic wherein the cells grow as clonal populations derived from a single precursor termed the colony-forming-unit **fibroblast** (CFU-F). Using this liquid culture system, we demonstrate that the relative abundance of MSCs in the bone marrow of five. . . fide mesenchymal progenitors, as cells can be induced to differentiate into osteoblasts and adipocytes after exposure to dexamethasone and into **myoblasts** after exposure to amphotericin B. Our results point to significant strain differences in the properties of MSCs and indicate that. . .

CT Medical Descriptors:
*stroma cell
*bone marrow cell
strain difference
colony forming unit
growth regulation
genetic heterogeneity
cell adhesion
nonhuman
female
mouse
controlled study
animal tissue
animal cell
article
priority journal
*basic fibroblast growth factor: EC, endogenous compound
*epidermal growth factor: EC, endogenous compound
*platelet derived endothelial cell growth factor: EC, endogenous compound
fibrinogen receptor: EC, endogenous compound
cd45 antigen: EC, endogenous compound
amphotericin b

**laminin**
fibronectin
poly dextro lysine
RN (basic fibroblast growth factor) 106096-93-9; (**epidermal growth factor**) 62229-50-9; (amphotericin b) 1397-89-3, 30652-87-0; (**laminin**) 2408-79-9; (fibronectin) 86088-83-7

L20 ANSWER 6 OF 8 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1998399179 EMBASE
TITLE: Human muscle cells express a functional costimulatory molecule distinct from B7.1 (CD80) and B7.2 (CD86) in vitro and in inflammatory lesions.
AUTHOR: Behrens L.; Kerschensteiner M.; Misgeld T.; Goebels N.; Wekerle H.; Hohlfeld R.
CORPORATE SOURCE: Dr. R. Hohlfeld, Department of Neuroimmunology, Max-Planck Institute of Neurobiology, D-821521 Martinsried, Germany. hohlfeld@neuro.mpg.de
SOURCE: Journal of Immunology, (1 Dec 1998) 161/11 (5943-5951). Refs: 51
ISSN: 0022-1767 CODEN: JOIMA3
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 005 General Pathology and Pathological Anatomy
026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The B7 family of costimulatory molecules likely includes members distinct from B7.1 (CD80) and B7.2 (CD86). After stimulation with IFN-.gamma. or TNF-.alpha., human **myoblasts** selectively express BB-1, but not B7.1 or B7.2. BB-1 is detected by anti-BB-1, a mAb cross-reacting with B7.1 (but not B7.2) and an as yet undefined costimulatory molecule. The absence of B7.1 and B7.2 in BB-1-positive **myoblasts** was confirmed by RT-PCR. The molecule detected by anti-BB-1 is functional, because anti-BB-1 mAb and CTLA4Ig (but not anti- B7.1- or anti-B7.2-specific mAbs) completely inhibit Ag presentation by cytokine-induced **myoblasts** to HLA-DR-matched Ag-specific CD4+ T cell lines. Stimulation of **myoblasts** with IL-4 induces B7.1 and B7.2, as well as BB-1, but with different time kinetics. Stimulation of CD40-positive **myoblasts** with anti-CD40 mAb selectively induces BB-1, whereas stimulation with CD40L- transfected mouse L **cells** induces BB-1 and B7.1, with different kinetics. To assess whether BB-1 is expressed in muscle tissue, we investigated 23 muscle biopsy specimens from patients with polymyositis, dermatomyositis, inclusion body myositis, Duchenne muscular dystrophy, and nonmyopathic controls by immunohistochemistry and confocal laser microscopy. We found that, in all inflammatory myopathy cases, but not in normal muscle, many muscle fibers strongly react with anti-BB-1. In contrast, muscle fibers did not react with B7.1- or B7.2-monospecific mAbs in any of the pathologic specimens or in normal muscle. Our results demonstrate that human muscle cells can be induced to selectively express BB-1, a functional costimulatory molecule distinct from B7.1 and B7.2. This molecule may play an important role in the immunobiology of muscle.
AB . . . of costimulatory molecules likely includes members distinct from B7.1 (CD80) and B7.2 (CD86). After stimulation with IFN-.gamma. or TNF-.alpha., human **myoblasts** selectively express BB-1, but not B7.1 or B7.2. BB-1 is detected by anti-BB-1, a mAb cross-reacting with B7.1 (but not B7.2) and an as yet undefined costimulatory molecule. The absence of B7.1 and B7.2 in BB-1-positive **myoblasts** was confirmed by RT-PCR. The molecule detected by anti-BB-1 is functional, because anti-BB-1 mAb and CTLA4Ig (but not anti- B7.1- or anti-B7.2-specific mAbs) completely inhibit Ag presentation by cytokine-induced **myoblasts** to HLA-DR-matched Ag-specific CD4+ T cell lines. Stimulation of **myoblasts** with IL-4 induces B7.1 and B7.2, as well as BB-1, but with different time kinetics. Stimulation of CD40-positive **myoblasts** with anti-CD40 mAb selectively induces BB-1, whereas stimulation with CD40L- transfected mouse L **cells** induces BB-1 and B7.1, with different kinetics. To assess whether BB-1 is expressed in muscle tissue, we investigated 23 muscle. . .
CT Medical Descriptors:
*muscle . . . synthesis
immunohistochemistry
muscle biopsy
major histocompatibility complex
myoblast
confocal laser microscopy
immunobiology
cross reaction
polymyositis
dermatomyositis
cell inclusion
myopathy
human
human tissue
human cell
article
nucleotide sequence
priority journal
*b7 antigen
*cd86 antigen
HLA DR3 antigen
interleukin 4
basic fibroblast growth factor
**epidermal growth factor**
**laminin**
dexamethasone
amphotericin
RN (basic fibroblast growth factor) 106096-93-9; (**epidermal growth factor**) 62229-50-9; (**laminin**) 2408-79-9; (dexamethasone) 50-02-2; (amphotericin) 12633-72-6

L20 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:652330 CAPLUS
DOCUMENT NUMBER: 121:252330
TITLE: An experimental study on muscle regeneration. Formation of myotubes and environment
AUTHOR(S): Nakama, Sueo; Ooi, Yoshio; Mato, Masato
CORPORATE SOURCE: Dep. Orthop. Surg., Jichi Med. Sch., Tochigi, 329-04, Japan
SOURCE: Nippon Seikeigeka Gakkai Zasshi (1994), 68(7), 560-71
CODEN: NSGZA2; ISSN: 0021-5325
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The repair of injured muscle is completed by a proliferation and differentiation of myogenic cells and myotubes. However, little is known about the microenvironment in which the formation of myotubes can proceed in vivo. The authors employed the polyvinyl alc. (PVA) sponge model to investigate the milieu in which myotubes could be differentiated. Small pieces of PVA sponge were implanted after immersion in physiol. saline into the gastrocnemius of adult Wistar rats as controls. In the exptl. groups, before implantation, PVA were treated with basic **fibroblast** growth factor (**EGF**), type IV **collagen**, **laminin** and hydrocortisone. Newly-formed tissues within the PVA were examd. immuno- and histochem. under light- and electromicroscopy after 7-10 days implantation. FGF, **collagen** and **laminin** accelerated the migration of mesenchymal cells into the PVA compared with controls. Myotube formation could not be detected in either the exptl. or control groups. In the specimen treated with 10 mg/mL hydrocortisone, myotubes appeared frequently in the migrating cells of PVA. A small amt. of **fibroblasts**, macrophages and eosinophils were scattered around the myotubes and not clustered. They were provided with undefined basal lamina. Fibronectin and **collagen** fibers were also detected surrounding the myotubes. These findings suggested that, although the migration of **satellite** cells and the appearance of fibronectin are prerequisites for myotube formation, the most promising condition for myotube formation involved a suppression in the migration of the **fibroblasts**, macrophages and eosinophils. A certain concn. of steroids can therefore prep. a favorable microenvironment for this process.

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IT **Laminins**
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(myotube formation and its microenvironment during muscle regeneration)

IT **Collagens**, biological studies
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(myotube formation and its microenvironment during muscle regeneration)

IT **Collagens**, biological studies
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(type IV, effect of proteins and hydrocortisone and growth factor on myotube formation and its microenvironment during muscle regeneration)

L20 ANSWER 8 OF 8 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 93209986 MEDLINE
DOCUMENT NUMBER: 93209986 PubMed ID: 8458868
TITLE: Parallel regulation of procollagen I and colligin, a **collagen**-binding protein and a member of the serine protease inhibitor family.
AUTHOR: Clarke E P; Jain N; Brickenden A; Lorimer I A; Sanwal B D
CORPORATE SOURCE: Department of Biochemistry, University of Western Ontario, London, Canada.
SOURCE: JOURNAL OF CELL BIOLOGY, (1993 Apr) 121 (1) 193-9.
Journal code: 0375356. ISSN: 0021-9525.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199304
ENTRY DATE: Entered STN: 19930514
Last Updated on STN: 20000303
Entered Medline: 19930427

AB A potential regulatory linkage between the biosynthesis of colligin, a **collagen**-binding protein of the ER, and procollagen I was examined under a variety of experimental conditions. Cell lines which did not produce a significant amount of procollagen I mRNA also lacked the capacity to produce colligin mRNA. Anchorage-dependent cell lines like L6 **myoblasts** and normal rat kidney **fibroblasts** produced both colligin and procollagen I mRNA, but the level of both was concurrently reduced considerably in their ras-transformed counterparts. Similarly, during the differentiation of L6 **myoblasts**, levels of both colligin and procollagen declined together. Treatment of **myoblasts** by dexamethasone or **EGF** led to a decrease in the steady-state levels of procollagen I mRNA, and this was, again, accompanied by a decrease in colligin mRNA synthesis. On the other hand, when the rate of procollagen I synthesis was stimulated by treatment of **myoblasts** with TGF beta, it led to the concurrent augmentation of both the mRNA and protein levels of colligin. A linkage between the regulation of synthesis of procollagen I and colligin thus seems to exist. The only exception to this generalization is provided by the heat induction behavior of the two proteins. Treatment of **myoblasts** for a very short period leads to an increase in the synthesis of both the mRNA and protein levels of colligin. This, however, is not accompanied by a change in the mRNA levels of procollagen I. These studies establish that colligin and procollagen are generally tightly co-regulated except after heat shock, suggesting an important functional linkage.

TI Parallel regulation of procollagen I and colligin, a **collagen**-binding protein and a member of the serine protease inhibitor family.

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CT Check Tags: Animal; Human; Support, Non-U.S. Gov't
*Carrier Proteins: ME, metabolism
Cell Differentiation
Cells, Cultured
**Collagen: BI, biosynthesis**
***Collagen: ME, metabolism**
Dexamethasone: PD, pharmacology
**Epidermal Growth Factor: PH, physiology**
Heat-Shock Proteins: ME, metabolism
Mice
Muscles: CY, cytology
Muscles: ME, metabolism
*Procollagen: ME, metabolism
RNA, . . .

RN 50-02-2 (Dexamethasone); **62229-50-9 (Epidermal Growth Factor)**; **9007-34-5 (Collagen)**

=> dis his

(FILE 'HOME' ENTERED AT 08:10:54 ON 09 JUL 2002)

FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1 4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2 1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3 0 S L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4 1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L5 2 S L2 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6 2 DUP REM L5 (0 DUPLICATES REMOVED)
L7 1 S L6 NOT L4
L8 6089 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P
L9 1256 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR
L10 1 S L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L11 2 S L9 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR
L12 19 S L9 AND (CARDIAC OR HEART) AND TRANSPLANT?
L13 10 DUP REM L12 (9 DUPLICATES REMOVED)
L14 4 S GATA? AND L9
L15 1 DUP REM L14 (3 DUPLICATES REMOVED)
L16 4184 S ( MYOBLAST? OR SATELLITE ) (P) (FIBROBLAST? OR (L (1N) CELL?
L17 8 S L16 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L18 8 S L16 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L19 14 S L17 OR L18
L20 8 DUP REM L19 (6 DUPLICATES REMOVED)

=> s l16 and (cardiac or heart or mycocard?) and (transplant? or graft?)
L21 32 L16 AND (CARDIAC OR HEART OR MYOCARD?) AND (TRANSPLANT? OR GRAFT?)

=> dup rem l21
PROCESSING COMPLETED FOR L21
L22 15 DUP REM L21 (17 DUPLICATES REMOVED)

=> dis l22 1-15 ibib abs kwic

L22 ANSWER 1 OF 15 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2002229838 MEDLINE
DOCUMENT NUMBER: 21964173 PubMed ID: 11967271
TITLE: The role of stem cells in skeletal and **cardiac** muscle repair.
AUTHOR: Grounds Miranda D; White Jason D; Rosenthal Nadia; Bogoyevitch Marie A
CORPORATE SOURCE: Department of Anatomy & Human Biology, The University of Western Australia, Crawley, Western Australia.. mgrounds@anhb.uwa.edu.au
SOURCE: JOURNAL OF HISTOCHEMISTRY AND CYTOCHEMISTRY, (2002 May) 50 (5) 589-610. Ref: 223
Journal code: 9815334. ISSN: 0022-1554.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200206
ENTRY DATE: Entered STN: 20020423
Last Updated on STN: 20020611
Entered Medline: 20020610

AB In postnatal muscle, skeletal muscle precursors (**myoblasts**) can be derived from **satellite** cells (reserve cells located on the surface of mature myofibers) or from cells lying beyond the myofiber, e.g., interstitial connective tissue or bone marrow. Both of these classes of cells may have stem cell properties. In addition, the heretical idea that post-mitotic myonuclei lying within mature myofibers might be able to re-form **myoblasts** or stem cells is examined and related to recent observations for similar post-mitotic cardiomyocytes. In adult **hearts** (which previously were not considered capable of repair), the role of replicating endogenous cardiomyocytes and the recruitment of other (stem) cells into cardiomyocytes for new **cardiac** muscle formation has recently attracted much attention. The relative contribution of these various sources of precursor cells in postnatal muscles and the factors that may enhance stem cell participation in the formation of new skeletal and **cardiac** muscle in vivo are the focus of this review. We concluded that, although many endogenous cell types can be converted to skeletal muscle, the contribution of non-myogenic cells to the formation of new postnatal skeletal muscle in vivo appears to be

negligible. Whether the recruitment of such cells to the myogenic lineage can be significantly enhanced by specific inducers and the appropriate microenvironment is a current topic of intense interest. However, dermal **fibroblasts** appear promising as a realistic alternative source of exogenous **myoblasts** for **transplantation** purposes. For **heart** muscle, experiments showing the participation of bone marrow-derived stem cells and endothelial cells in the repair of damaged **cardiac** muscle are encouraging.

TI The role of stem cells in skeletal and **cardiac** muscle repair.

AB In postnatal muscle, skeletal muscle precursors (**myoblasts**) can be derived from **satellite** cells (reserve cells located on the surface of mature myofibers) or from cells lying beyond the myofiber, e.g., interstitial connective. . . . stem cell properties. In addition, the heretical idea that post-mitotic myonuclei lying within mature myofibers might be able to re-form **myoblasts** or stem cells is examined and related to recent observations for similar post-mitotic cardiomyocytes. In adult **hearts** (which previously were not considered capable of repair), the role of replicating endogenous cardiomyocytes and the recruitment of other (stem) cells into cardiomyocytes for new **cardiac** muscle formation has recently attracted much attention. The relative contribution of these various sources of precursor cells in postnatal muscles and the factors that may enhance stem cell participation in the formation of new skeletal and **cardiac** muscle in vivo are the focus of this review. We concluded that, although many endogenous cell types can be converted. . . can be significantly enhanced by specific inducers and the appropriate microenvironment is a current topic of intense interest. However, dermal **fibroblasts** appear promising as a realistic alternative source of exogenous **myoblasts** for **transplantation** purposes. For **heart** muscle, experiments showing the participation of bone marrow-derived stem cells and endothelial cells in the repair of damaged **cardiac** muscle are encouraging.

CT Check Tags: Animal; Human; Support, Non-U.S. Gov't
Bone Marrow Cells: PH, physiology
Cell Nucleus: PH, physiology
**Cell Transplantation**
***Heart: PH, physiology**
Muscle, Skeletal: CY, cytology
*Muscle, Skeletal: PH, physiology
Muscle, Skeletal: UL, ultrastructure
*Myocardium: CY, cytology
*Regeneration
*Stem Cells: PH, physiology
**Stem Cells: TR, transplantation**

L22 ANSWER 2 OF 15 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001574801 MEDLINE
DOCUMENT NUMBER: 21538784 PubMed ID: 11502737
TITLE: Control of myoblast proliferation with a synthetic ligand.
AUTHOR: Whitney M L; Otto K G; Blau C A; Reinecke H; Murry C E
CORPORATE SOURCE: Department of Bioengineering, University of Washington, Seattle, Washington 98195-7335, USA.
CONTRACT NUMBER: HL07312 (NHLBI)
K08HL03094 (NHLBI)
P01HL03174 (NHLBI)
R01HL61553 (NHLBI)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Nov 2) 276 (44) 41191-6.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20011030
Last Updated on STN: 20020123
Entered Medline: 20011207

AB Skeletal **myoblast grafts** can form contractile tissue to replace scar and repair injured myocardium. Although potentially therapeutic, generating reproducible and sufficiently large **grafts** remains a challenge. To control **myoblast** proliferation in situ, we created a chimeric receptor composed of a modified FK506-binding protein (F36V) fused with the **fibroblast** growth factor receptor-1 cytoplasmic domain. Mouse MM14 **myoblasts** were transfected with this construct and treated with AP20187, a dimeric F36V ligand, to induce receptor dimerization. Transfected **myoblasts** proliferated in response to dimerizer (comparable with basic **fibroblast** growth factor (bFGF) treatment), whereas the dimerizer had no effect on non-transfected cells. Similar to bFGF treatment, dimerizer treatment blocked myotube formation and myosin heavy chain expression and stimulated mitogen-activated protein (MAP) kinase phosphorylation in transfected cells. Non-transfected cells differentiated normally and showed no MAP kinase phosphorylation with dimerizer treatment. Furthermore, **myoblasts** treated with dimerizer for 30 days in culture reduced MAP kinase phosphorylation, withdrew from the cell cycle, and differentiated normally upon drug withdrawal, demonstrating reversibility of the effect. Thus, forced dimerization of the **fibroblast** growth factor receptor-1 cytoplasmic domain reproduces critical aspects of bFGF signaling in **myoblasts**. We hypothesize that in vivo administration of AP20187 following **myoblast** **grafting** may allow control over **graft** size and ultimately improve **cardiac** function.

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that in vivo administration of AP20187 following **myoblast grafting** may allow control over **graft** size and ultimately improve **cardiac** function.

L22 ANSWER 3 OF 15 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2001480936 MEDLINE
DOCUMENT NUMBER: 21415480 PubMed ID: 11524400
TITLE: Implantation of bone marrow mononuclear cells into ischemic myocardium enhances collateral perfusion and regional function via side supply of angioblasts, angiogenic ligands, and cytokines.
AUTHOR: Kamihata H; Matsubara H; Nishiue T; Fujiyama S; Tsutsumi Y; Ozono R; Masaki H; Mori Y; Iba O; Tateishi E; Kosaki A; Shintani S; Murohara T; Imaizumi T; Iwasaka T
CORPORATE SOURCE: Department of Medicine II and Cardiovascular Center, Kansai Medical University, Moriguchi, Osaka, Japan.
SOURCE: CIRCULATION, (2001 Aug 28) 104 (9) 1046-52.
Journal code: 0147763. ISSN: 1524-4539.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200109
ENTRY DATE: Entered STN: 20010830
Last Updated on STN: 20010917
Entered Medline: 20010913

AB BACKGROUND: Bone marrow implantation (BMI) was shown to enhance angiogenesis in a rat ischemic **heart** model. This preclinical study using a swine model was designed to test the safety and therapeutic effectiveness of BMI. METHODS AND RESULTS: BM-derived mononuclear cells (BM-MNCs) were injected into a zone made ischemic by coronary artery ligation. Three weeks after BMI, regional blood flow and capillary densities were significantly higher (4.6- and 2.8-fold, respectively), and **cardiac** function was improved. Angiography revealed that there was a marked increase (5.7-fold) in number of visible collateral vessels. Implantation of porcine coronary microvascular endothelial cells (CMECs) did not cause any significant increase in capillary densities. Labeled BM-MNCs were incorporated into approximately 31% of neocapillaries and corresponded to approximately 8.7% of macrophages but did not actively survive as **myoblasts** or **fibroblasts**. There was no bone formation by osteoblasts or malignant ventricular arrhythmia. Time-dependent changes in plasma levels for **cardiac** enzymes (troponin I and creatine kinase-MB) did not differ between the BMI, CMEC, and medium-alone implantation groups. BM-MNCs contained 16% of endothelial-lineage cells and expressed basic **fibroblast** growth factor>>vascular endothelial growth factor>angiopoietin 1 mRNAs, and their **cardiac** levels were significantly upregulated by BMI. **Cardiac** interleukin-1beta and tumor necrosis factor-alpha mRNA expression were also induced by BMI but not by CMEC implantation. BM-MNCs were actively differentiated to endothelial cells in vitro and formed network structure with human umbilical vein endothelial cells. CONCLUSIONS: BMI may constitute a novel safety strategy for achieving optimal therapeutic angiogenesis by the natural ability of the BM cells to secrete potent angiogenic ligands and cytokines as well as to be incorporated into foci of neovascularization.

AB BACKGROUND: Bone marrow implantation (BMI) was shown to enhance angiogenesis in a rat ischemic **heart** model. This preclinical study using a swine model was designed to test the safety and therapeutic effectiveness of BMI. METHODS. . . artery ligation. Three weeks after BMI, regional blood flow and capillary densities were significantly higher (4.6- and 2.8-fold, respectively), and **cardiac** function was improved. Angiography revealed that there was a marked increase (5.7-fold) in number of visible collateral vessels. Implantation of. . . were incorporated into approximately 31% of neocapillaries and corresponded to approximately 8.7% of macrophages but did not actively survive as **myoblasts** or **fibroblasts**. There was no bone formation by osteoblasts or malignant ventricular arrhythmia. Time-dependent changes in plasma levels for **cardiac** enzymes (troponin I and creatine kinase-MB) did not differ between the BMI, CMEC, and medium-alone implantation groups. BM-MNCs contained 16% of endothelial-lineage cells and expressed basic **fibroblast** growth factor>>vascular endothelial growth factor>angiopoietin 1 mRNAs, and their **cardiac** levels were significantly upregulated by BMI. **Cardiac** interleukin-1beta and tumor necrosis factor-alpha mRNA expression were also induced by BMI but not by CMEC implantation. BM-MNCs were actively. . .

CT . . .
Coronary Circulation
Endothelial Growth Factors: GE, genetics
Endothelium, Vascular: CY, cytology
Fibroblast Growth Factor 2: GE, genetics
Gene Expression Regulation
***Hematopoietic Stem Cell Transplantation**
Interleukin-1: GE, genetics
*Leukocytes, Mononuclear: CY, cytology
Lymphokines: GE, genetics
Membrane Glycoproteins: GE, genetics
Myocardial Ischemia: GE,. . .

L22 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 4
ACCESSION NUMBER: 2000:547368 CAPLUS
DOCUMENT NUMBER: 133:140194
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: U.S., 37 pp., Cont.-in-part of U.S. Ser. No. 863,882.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ,

MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

| | | | | | |
|---|---|---|---|---|---|
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 | |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 | |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
| JP 2002518006 | T2 | 20020625 | JP 2000-554845 | 19990618 | |

PRIORITY APPLN. INFO.:
US 1997-863882 A2 19970528
US 1998-99994 A2 19980619
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Tissue **transplants** for repair of myocardial scars

AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**.

ST **heart** scar tissue repair **graft** gene therapy

IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)

IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-xL; tissue **transplants** for repair of myocardial scars)

IT Medical goods
Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)

IT Animal tissue
(artificial; tissue **transplants** for repair of myocardial scars)

IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)

IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)

IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)

IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)

IT **Heart**, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)

IT Prosthetic materials and Prosthetics
(implants, artificial **heart** pacemaker; tissue **transplants** for repair of myocardial scars)

IT **Heart**, disease
(infarction; tissue **transplants** for repair of myocardial scars)

IT Adhesives
Adhesives
(medical; tissue **transplants** for repair of myocardial scars)

IT **Heart**
(myocyte; tissue **transplants** for repair of myocardial scars)

IT **Heart**
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)

IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)

IT Polyester fibers, biological studies
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)

IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)

IT **Heart**, disease
(scar, repair of; tissue **transplants** for repair of myocardial scars)

IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)

IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)

IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)

IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)
IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)
IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L22 ANSWER 5 OF 15 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:192507 BIOSIS
DOCUMENT NUMBER: PREV200100192507
TITLE: **Transplants** for myocardial scars and methods and cellular preparations.
AUTHOR(S): Mickle, Donald A. G. (1); Li, Ren-Ke; Weisel, Richard D.
CORPORATE SOURCE: (1) 7 McGillivary Ave., Toronto, Ont. Canada
PATENT INFORMATION: US 6110459 August 29, 2000
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Aug. 29, 2000) Vol. 1237, No. 5, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English
AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are especially useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.
TI **Transplants** for myocardial scars and methods and cellular preparations.
AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are especially useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.
IT Methods & Equipment
cardiomyocyte culturing method: cell culture method; cardiomyocyte **grafting**: therapeutic method, **transplantation** method; cardiomyocyte isolation method: cell isolation method

L22 ANSWER 6 OF 15 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2001064096 MEDLINE
DOCUMENT NUMBER: 20426151 PubMed ID: 10972335
TITLE: Comparison of benefits on myocardial performance of cellular cardiomyoplasty with skeletal **myoblasts** and **fibroblasts**.
AUTHOR: Hutcheson K A; Atkins B Z; Hueman M T; Hopkins M B; Glower D D; Taylor D A
CORPORATE SOURCE: Department of Medicine, Duke University Medical Center, Durham, NC 27710, USA.
CONTRACT NUMBER: 1R01 HL63346-01 (NHLBI)
2R01 HL5798-02 (NHLBI)
SOURCE: CELL TRANSPLANTATION, (2000 May-Jun) 9 (3) 359-68.
Journal code: 9208854. ISSN: 0963-6897.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001222
AB Cellular cardiomyoplasty (CCM), or introduction of immature cells into terminally injured **heart**, can mediate repair of chronically injured myocardium. Several different cell types, ranging from embryonic stem cells to autologous skeletal **myoblasts**, have been successfully propagated within damaged **heart** and shown to improve myocardial performance. However, it is unclear if the functional advantages associated with CCM depend upon the use of myogenic cells or if similar results can be seen with other cell types. Thus, we compared indices of regional contractile (systolic) and diastolic myocardial performance following **transplantation** of either autologous skeletal **myoblasts** (Mb) or dermal **fibroblasts** (Fb) into chronically injured rabbit **heart**. In vivo left ventricular (LV) pressure (P) and regional segment length (SL) were determined in 15 rabbits by micromanometry and sonomicrometry 1 week following LV cryoinjury (CRYO) and again 3 weeks after autologous skeletal Mb or dermal Fb **transplantation**. Quantification of systolic performance was based on the linear regression of regional stroke work and end-diastolic (ED) SL. Regional diastolic properties were assessed using the curvilinear relationships between LVEDP and strain (epsilon) as well as LVEDP and EDSL. At study termination, cellular engraftment was characterized histologically in a blinded fashion. Indices of diastolic performance were improved following CCM with either Mb or Fb. However, only Mb **transplantation** improved systolic performance; Fb transfer actually resulted in a significant decline in systolic performance. These data suggest that both contractile and noncontractile cells can improve regional material properties or structural integrity of terminally injured **heart**, as reflected by improvements in diastolic performance. However, only Mb improved systolic performance in the damaged region, supporting the role of myogenic cells in augmenting contraction. Further studies are needed to define the mechanism by which these effects occur and to evaluate the long-term safety and efficacy of CCM with any cell type.
TI Comparison of benefits on myocardial performance of cellular cardiomyoplasty with skeletal **myoblasts** and **fibroblasts**
.
AB Cellular cardiomyoplasty (CCM), or introduction of immature cells into terminally injured **heart**, can mediate repair of chronically

injured myocardium. Several different cell types, ranging from embryonic stem cells to autologous skeletal **myoblasts**, have been successfully propagated within damaged **heart** and shown to improve myocardial performance. However, it is unclear if the functional advantages associated with CCM depend upon the. . . can be seen with other cell types. Thus, we compared indices of regional contractile (systolic) and diastolic myocardial performance following **transplantation** of either autologous skeletal **myoblasts** (Mb) or dermal **fibroblasts** (Fb) into chronically injured rabbit **heart**. In vivo left ventricular (LV) pressure (P) and regional segment length (SL) were determined in 15 rabbits by micromanometry and sonomicrometry 1 week following LV cryoinjury (CRYO) and again 3 weeks after autologous skeletal Mb or dermal Fb **transplantation**. Quantification of systolic performance was based on the linear regression of regional stroke work and end-diastolic (ED) SL. Regional diastolic. . . in a blinded fashion. Indices of diastolic performance were improved following CCM with either Mb or Fb. However, only Mb **transplantation** improved systolic performance; Fb transfer actually resulted in a significant decline in systolic performance. These data suggest that both contractile and noncontractile cells can improve regional material properties or structural integrity of terminally injured **heart**, as reflected by improvements in diastolic performance. However, only Mb improved systolic performance in the damaged region, supporting the role. . .

CT Check Tags: Animal; Comparative Study; Human; Support, U.S. Gov't, P.H.S.
*Cardiomyoplasty: MT, methods
***Cell Transplantation**
Diastole
***Fibroblasts: TR, transplantation**
**Heart: AH, anatomy & histology**
***Heart: PH, physiology**
Microscopy, Fluorescence
*Muscle, Skeletal: CY, cytology
**Muscle, Skeletal: TR, transplantation**
Myocardial Diseases: PA, pathology
Myocardial Diseases: SU, surgery
Myocardium: CY, cytology
Myocardium: PA, pathology
Rabbits
Skin: CY, cytology
Systole
**Transplantation, Autologous**

L22 ANSWER 7 OF 15 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2000263300 EMBASE
TITLE: Cell therapy for ventricular dysfunction.
AUTHOR: Sarjeant J.M.; Yau T.M.; Li R.-K.; Wiesel R.D.; Mickle D.A.G.
CORPORATE SOURCE: Dr. T.M. Yau, Division of Cardiovascular Surgery, Toronto General Hospital, 200 Elizabeth Street, Toronto, Ont. M5G 2C4, Canada
SOURCE: Cardiovascular Reviews and Reports, (2000) 21/6 (287-292). Refs: 25
ISSN: 0197-3118 CODEN: CRRPD4
COUNTRY: United States
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 018 Cardiovascular Diseases and Cardiovascular Surgery
026 Immunology, Serology and Transplantation
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Current therapies for severe ventricular dysfunction have limited efficacy. Novel techniques to repopulate an infarcted **heart** with myocytes include stimulation of cardiomyocyte proliferation and transformation of myocardial **fibroblasts** into myocytes, but these techniques are in the very early stages of investigation. Cell **transplantation** may be the most promising new potential therapy for postinfarction ventricular dysfunction. **Transplantation** of **satellite** cells, smooth muscle cells, cardiomyocytes, and other cell types have been performed in animals. The effect of skeletal **myoblast transplantation** on **heart** function remains unclear. Smooth muscle cells engraft in a myocardial scar and improve **heart** function, but do not contract synchronously with native myocardium. **Transplanted** cardiomyocytes improve infarcted **heart** function, but only autotransplantation avoids the issues of immunosuppression, rejection, and zoonoses. Ongoing studies of autologous **heart** cell **transplantation** are yielding and encourage results that may lead to clinical application for patients with **heart** failure within the next few years. (C) 2000 by Cardiovascular Reviews and Reports.
AB Current therapies for severe ventricular dysfunction have limited efficacy. Novel techniques to repopulate an infarcted **heart** with myocytes include stimulation of cardiomyocyte proliferation and transformation of myocardial **fibroblasts** into myocytes, but these techniques are in the very early stages of investigation. Cell **transplantation** may be the most promising new potential therapy for postinfarction ventricular dysfunction. **Transplantation** of **satellite** cells, smooth muscle cells, cardiomyocytes, and other cell types have been performed in animals. The effect of skeletal **myoblast transplantation** on **heart** function remains unclear. Smooth muscle cells engraft in a myocardial scar and improve **heart** function, but do not contract synchronously with native myocardium. **Transplanted** cardiomyocytes improve infarcted **heart** function, but only autotransplantation avoids the issues of immunosuppression, rejection, and zoonoses. Ongoing studies of autologous **heart** cell **transplantation** are yielding and encourage results that may lead to clinical application for patients with **heart** failure within the next few years. (C) 2000 by Cardiovascular Reviews and Reports.

CT Medical Descriptors:
*coronary artery disease: DT, drug therapy
*coronary artery disease: EP, epidemiology
*coronary artery disease: ET, etiology
***heart disease: DT, drug therapy**
***heart disease: EP, epidemiology**
***heart disease: ET, etiology**
*adoptive immunotherapy
***cell transplantation**
**heart muscle cell**
cell proliferation
**heart function**
smooth muscle fiber
autotransplantation

satellite cell
allograft
human
review
diuretic agent: DT, drug therapy
dipeptidyl carboxypeptidase inhibitor: DT, drug therapy
vasodilator agent: DT, drug therapy
carvedilol: DT, drug. . .

L22 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:811354 CAPLUS
DOCUMENT NUMBER: 132:54829
TITLE: Tissue **transplants** for repair of myocardial scars
INVENTOR(S): Mickle, Donald A. G.; Le, Ren-Ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Genzyme Corporation, USA
SOURCE: PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9966036 | A1 | 19991223 | WO 1999-US13850 | 19990618 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 6099832 | A | 20000808 | US 1998-99994 | 19980619 |
| AU 9945790 | A1 | 20000105 | AU 1999-45790 | 19990618 |
| BR 9911369 | A | 20010313 | BR 1999-11369 | 19990618 |
| EP 1088062 | A1 | 20010404 | EP 1999-928805 | 19990618 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| JP 2002518006 | T2 | 20020625 | JP 2000-554845 | 19990618 |

PRIORITY APPLN. INFO.: US 1998-99994 A2 19980619
US 1997-863882 A2 19970528
WO 1999-US13850 W 19990618

AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Tissue **transplants** for repair of myocardial scars
AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**.
ST **heart** scar tissue repair **graft** gene therapy
IT Platelet-derived growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(B; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Bcl-xL; tissue **transplants** for repair of myocardial scars)
IT Medical goods
Medical goods
(adhesives; tissue **transplants** for repair of myocardial scars)
IT Animal tissue
(artificial; tissue **transplants** for repair of myocardial scars)
IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bcl-2; tissue **transplants** for repair of myocardial scars)
IT Surgery
(cardiomyoplasty; tissue **transplants** for repair of myocardial scars)
IT **Heart**, disease
(defects, repair of; tissue **transplants** for repair of myocardial scars)
IT Blood vessel
(endothelium; tissue **transplants** for repair of myocardial scars)
IT Embryo, animal
(fetus, fibroblasts and smooth muscle of; tissue **transplants** for repair of myocardial scars)
IT **Heart**, disease
(hypertrophic cardiomyopathy, idiopathic; tissue **transplants** for repair of myocardial scars)
IT Prosthetic materials and Prosthetics
(implants, artificial **heart** pacemaker; tissue **transplants** for repair of myocardial scars)
IT **Heart**, disease
(infarction; tissue **transplants** for repair of myocardial scars)
IT Adhesives
Adhesives
(medical; tissue **transplants** for repair of myocardial scars)
IT **Heart**
(myocyte; tissue **transplants** for repair of myocardial scars)
IT **Heart**
(pacemaker, artificial; tissue **transplants** for repair of myocardial scars)
IT Surgery
(plastic; tissue **transplants** for repair of myocardial scars)
IT Polyester fibers, biological studies

Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)

IT Proteins, specific or class
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)

IT **Heart**, disease
(scarring of; tissue **transplants** for repair of myocardial scars)

IT Myoblast
(skeletal; tissue **transplants** for repair of myocardial scars)

IT Muscle
(smooth; tissue **transplants** for repair of myocardial scars)

IT Angiogenesis
Animal tissue culture
Biodegradable materials
Blood pressure
Fibroblast
Gene therapy
Genetic engineering
Granulation tissue
Plasmid vectors
Transformation, genetic
**Transplant** and **Transplantation**
(tissue **transplants** for repair of myocardial scars)

IT Angiogenic factors
Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; tissue **transplants** for repair of myocardial scars)

IT 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(scaffolding; tissue **transplants** for repair of myocardial scars)

IT 9004-10-8, Insulin, biological studies 67763-96-6, Insulin like growth factor i 67763-97-7, Insulin like growth factor ii 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(tissue **transplants** for repair of myocardial scars)

L22 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:404856 CAPLUS
DOCUMENT NUMBER: 131:63507
TITLE: Methods and compositions for improving the success of cell **transplantation** in a host
INVENTOR(S): Tremblay, Jacques P.
PATENT ASSIGNEE(S): Universite Laval, Can.
SOURCE: PCT Int. Appl., 90 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9930730 | A1 | 19990624 | WO 1998-CA1176 | 19981215 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9918649 | A1 | 19990705 | AU 1999-18649 | 19981215 |

PRIORITY APPLN. INFO.: CA 1997-2224768 19971215
CA 1997-2225837 19971224
WO 1998-CA1176 19981215

AB The present invention covers significant improvements for each event involved in the **transplantation** success or **graft** survival. These improvements, sep. or combined with each other, greatly ameliorate the recovery of a tissue towards a normal function. They comprise: (a) the redn. of early death of **transplanted** cells by anti-inflammatory agents such as TGFbeta1, an inhibitor of oligosaccharide synthesis, a glucosidase, IL-10, vIL-10, IL-4, INFgamma, IL-2R, IL-1Ra, Fas-L, sCR1, a super oxide dismutase, a neutrophil inhibitory factor (NIF), a ligand binding in an antagonist fashion to LFA-1, MAC-1, ICAM-1, CD-18, CD-31, CD-50, E-selectin, P-selectin, TNFalpha, IL-1 and IL-8. The anti-inflammatory agents may comprise an anti-LFA-1 or -ICAM-1; (b) the improvement of the diffusion and of the fusion of **transplanted** cells with the host tissue by metalloproteases; (c) the ex vivo proliferation of the **transplanted** cells with growth factors or oncogenes; (d) the use of **fibroblasts** or stem cells in lieu of **myoblasts**, by transforming the formers into the latter with myogenic genes; (e) expressing utrophin in lieu of dystrophin in cases of muscular dystrophy; and (f) immunosuppressing the host for long-term **graft** survival.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Methods and compositions for improving the success of cell **transplantation** in a host

AB The present invention covers significant improvements for each event involved in the **transplantation** success or **graft** survival. These improvements, sep. or combined with each other, greatly ameliorate the recovery of a tissue towards a normal function. They comprise: (a) the redn. of early death of **transplanted** cells by anti-inflammatory agents such as TGFbeta1, an inhibitor of oligosaccharide

synthesis, a glucosidase, IL-10, vIL-10, IL-4, INFgamma, IL-2R, IL-1Ra, Fas-L, sCR1, a super oxide dismutase, a neutrophil inhibitory factor (NIF), a ligand binding in an antagonist fashion to LFA-1, MAC-1, ICAM-1, CD-18, CD-31, CD-50, E-selectin, P-selectin, TNFalpha, IL-1 and IL-8. The anti-inflammatory agents may comprise an anti-LFA-1 or -ICAM-1; (b) the improvement of the diffusion and of the fusion of **transplanted** cells with the host tissue by metalloproteases; (c) the ex vivo proliferation of the **transplanted** cells with growth factors or oncogenes; (d) the use of **fibroblasts** or stem cells in lieu of **myoblasts**, by transforming the formers into the latter with myogenic genes; (e) expressing utrophin in lieu of dystrophin in cases of muscular dystrophy; and (f) immunosuppressing the host for long-term **graft** survival.

ST cell **transplant** survival antiinflammatory genetic engineering

IT Neutrophil
(-inhibitory factor; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Muscular dystrophy
(Becker's; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Muscular dystrophy
(Duchenne; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Ecdysteroids
Metallothioneins
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(H2K promoter inducible by; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Promoter (genetic element)
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(H2K; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Cell adhesion molecules
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ICAM-1 (intercellular adhesion mol. 1), ligands; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(MHC (major histocompatibility complex), engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, animal
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(MRF-4; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, animal
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Myf-5; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, animal
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(MyoD1; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Genetic element
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(N box, mutation in; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, microbial
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(SV40 large T antigen-encoding; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Animal tissue culture
Anti-inflammatory agents
Antiarthritics
Arthritis
Gene therapy
Genetic engineering
**Heart**
Immune tolerance
Immunosuppressants
Macrophage
Muscle
Neutrophil
Psoriasis
Transformation, genetic
**Transplant** and **Transplantation**
**Transplant** rejection
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Fas ligand
Hepatocyte growth factor
Interleukin 1
Interleukin 1 receptors
Interleukin 10
Interleukin 2 receptors
Interleukin 4
Interleukin 6
Platelet-derived growth factors
Transferrins
Tumor necrosis factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Adhesins
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Oligosaccharides, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)

(dystroglycans, engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Blood-coagulation factors
Dystrophin
Hormones, animal, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT **Heart**, disease
(failure; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Oligosaccharides, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(formation of, inhibitors of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Simian virus 40
(gene for large T antigen of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, animal
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(herculin-encoding; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Mutation
(in N-box of utrophin promoter; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Drug delivery systems
(injections, i.m.; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Drug delivery systems
(injections, i.v.; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(large T, SV40 gene encoding; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT LFA-1 (antigen)
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ligands; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Proteins, specific or class
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence)
(matrix; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Cell fusion
(myoblast; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Gene, animal
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(myogenin; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Glycosylation
(redn. of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Oligosaccharides, biological studies
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(sarcoglycans, engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Mutagenesis
(site-directed; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Mesenchyme
(stem cell, **transplant** of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(syntrophins, engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Myoblast
(**transplant** of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Swine
(**transplants** to humans from; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Proteins, specific or class
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(utrophins, engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT **Transplant** and **Transplantation**
(xenotransplant; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.alpha.-; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(.beta.1-; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT Interferons
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(.gamma., H2K promoter inducible by; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 60-54-8, Tetracycline 564-25-0, Doxycycline 84371-65-3, Ru486
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); BIOL (Biological study)
(H2K promoter inducible by; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 79831-76-8, Castanospermine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 9033-06-1, Glucosidase 9054-89-1, Superoxide dismutase 9061-61-4, Nerve growth factor 11028-71-0, Concanavalin a 17673-25-5D, Phorbol, esters 62229-50-9, Epidermal growth factor 67763-96-6, Insulin like growth factor 1 67763-97-7, Insulin like growth factor 2 79955-99-0, Stromelysin 1 106096-92-8, Acidic fibroblast growth factor 106096-93-9, Basic fibroblast growth factor 140610-48-6, Stromelysin 2 141256-52-2, Matrilysin 145267-01-2, Stromelysin 3 146480-35-5, Gelatinase a 146480-36-6, Gelatinase b 148348-15-6, Fibroblast growth factor 7 154531-34-7, Heparin binding epidermal growth factor like growth factor 161384-17-4, MMP-14 172308-17-7 175449-82-8, MMP-13
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 50-18-0, Cyclophosphamide 53123-88-9, Rapamycin 104987-11-3, Fk506
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 81669-70-7, Metalloprotease
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 9036-22-0, Tyrosine hydroxylase 9068-68-2, Arylsulfatase a 143011-72-7, Gcsf 151662-20-3, Myotonin-protein kinase
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(engineering of restoration of formation of; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 9004-06-2, Elastase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(metallo-; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 228247-71-0 228247-72-1
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(nucleotide sequence; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

IT 9001-12-1, Collagenase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(type 1; anti-inflammatory compns. for improving the success of cell **transplantation** in a host)

L22 ANSWER 10 OF 15 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 1999199461 MEDLINE
DOCUMENT NUMBER: 99199461 PubMed ID: 10099688
TITLE: Myoblast cell **grafting** into **heart** muscle: cellular biology and potential applications.
AUTHOR: Kessler P D; Byrne B J
CORPORATE SOURCE: Peter Belfer Cardiac Laboratory, Johns Hopkins University School of Medicine, Baltimore, Maryland 21205, USA.. pkessler@welchlink.welch.jhu.edu
SOURCE: ANNUAL REVIEW OF PHYSIOLOGY, (1999) 61 219-42. Ref: 165
Journal code: 0370600. ISSN: 0066-4278.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199905
ENTRY DATE: Entered STN: 19990607
Last Updated on STN: 19990607
Entered Medline: 19990526

AB This review surveys a wide range of cellular and molecular approaches to strengthening the injured or weakened **heart**, focusing on strategies to replace dysfunctional, necrotic, or apoptotic cardiomyocytes with new cells of mesodermal origin. A variety of cell types, including myogenic cell lines, adult skeletal **myoblasts**, immoratalized atrial cells, embryonic and adult cardiomyocytes, embryonic stem cells, tetratoma cells, genetically altered **fibroblasts**, smooth muscle cells, and bone marrow-derived cells have all been proposed as useful cells in **cardiac** repair and may have the capacity to perform **cardiac** work. We focus on the implantation of mesodermally derived cells, the best developed of the options. We review the developmental and cell biology that have stimulated these studies, examine the limitations of current knowledge, and identify challenges for the future, which we believe are considerable.

TI Myoblast cell **grafting** into **heart** muscle: cellular biology and potential applications.

AB This review surveys a wide range of cellular and molecular approaches to strengthening the injured or weakened **heart**, focusing on strategies to replace dysfunctional, necrotic, or apoptotic cardiomyocytes with new cells of mesodermal origin. A variety of cell types, including myogenic cell lines, adult skeletal **myoblasts**, immoratalized atrial cells, embryonic and adult cardiomyocytes, embryonic stem cells, tetratoma cells, genetically altered **fibroblasts**, smooth muscle cells, and bone marrow-derived cells have all been proposed as useful cells in **cardiac** repair and may have the capacity to perform **cardiac** work. We focus on the implantation of mesodermally derived cells, the best developed of the options. We review the developmental. .

CT Check Tags: Animal; Human
*Cell Transplantation
Drug Delivery Systems
Embryo: CY, cytology

Embryo: PH, physiology
*Fetal Tissue Transplantation
Gene Transfer Techniques
Heart Diseases: SU, surgery
*Muscle Fibers: CY, cytology
*Muscles: EM, embryology
*Papillary Muscles: EM, embryology

L22 ANSWER 11 OF 15 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 1999184340 MEDLINE
DOCUMENT NUMBER: 99184340 PubMed ID: 10086536
TITLE: Intracardiac **transplantation** of skeletal myoblasts yields two populations of striated cells in situ.
AUTHOR: Atkins B Z; Lewis C W; Kraus W E; Hutcheson K A; Glower D D; Taylor D A
CORPORATE SOURCE: Department of Medicine, Duke University Medical Center, Durham, North Carolina 27710, USA.
SOURCE: ANNALS OF THORACIC SURGERY, (1999 Jan) 67 (1) 124-9. Journal code: 15030100R. ISSN: 0003-4975.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199904
ENTRY DATE: Entered STN: 19990426
Last Updated on STN: 19990426
Entered Medline: 19990414
AB BACKGROUND: Adult **heart** lacks stem cells and cannot effectively regenerate. In contrast, skeletal muscle is constantly undergoing repair. We proposed to **transplant** immature skeletal **myoblasts** into injured myocardium. METHODS: Approximately 7x10(6) soleus skeletal **myoblasts** were expanded in vitro from adult New Zealand White rabbits (n = 23) whose posterior left ventricle was cryoinjured to create a transmural lesion. Autologous **myoblasts** (n = 18) or saline (n = 5) was **transplanted** into the central cryolesion at the time of injury (n = 6) or 1 week later (n = 12). **Hearts** were harvested 2 weeks after injection. RESULTS: **Myoblast** transfer did not incur further morbidity. After cryolesion, grossly, a 1.6-cm epicardial hemorrhagic lesion could be seen. Histologically, the transmural lesion contained inflammatory cells and active scarring but no viable cardiomyocytes. Electron microscopy demonstrated a predominance of collagen and **fibroblasts**. Nine **hearts** contained multinucleated cells within the cryolesion that covered approximately 75% of the central cryolesion in 17% of animals. Immunohistochemical analysis confirmed their skeletal muscle origin. At the periphery of the lesion, isolated clusters of nonskeletal muscle cells could be visualized (n = 12) that resembled immature cardiocytes. CONCLUSIONS: Autologous skeletal **myoblasts** can regenerate viable striated tissue within damaged myocardium. **Myoblast** transfer warrants further investigation as a new method for improving myocardial performance within infarcted myocardium.
TI Intracardiac **transplantation** of skeletal myoblasts yields two populations of striated cells in situ.
AB BACKGROUND: Adult **heart** lacks stem cells and cannot effectively regenerate. In contrast, skeletal muscle is constantly undergoing repair. We proposed to **transplant** immature skeletal **myoblasts** into injured myocardium. METHODS: Approximately 7x10(6) soleus skeletal **myoblasts** were expanded in vitro from adult New Zealand White rabbits (n = 23) whose posterior left ventricle was cryoinjured to create a transmural lesion. Autologous **myoblasts** (n = 18) or saline (n = 5) was **transplanted** into the central cryolesion at the time of injury (n = 6) or 1 week later (n = 12). **Hearts** were harvested 2 weeks after injection. RESULTS: **Myoblast** transfer did not incur further morbidity. After cryolesion, grossly, a 1.6-cm epicardial hemorrhagic lesion could be seen. Histologically, the transmural lesion contained inflammatory cells and active scarring but no viable cardiomyocytes. Electron microscopy demonstrated a predominance of collagen and **fibroblasts**. Nine **hearts** contained multinucleated cells within the cryolesion that covered approximately 75% of the central cryolesion in 17% of animals. Immunohistochemical analysis. . . lesion, isolated clusters of nonskeletal muscle cells could be visualized (n = 12) that resembled immature cardiocytes. CONCLUSIONS: Autologous skeletal **myoblasts** can regenerate viable striated tissue within damaged myocardium. **Myoblast** transfer warrants further investigation as a new method for improving myocardial performance within infarcted myocardium.
CT Check Tags: Animal
Biopsy
*Cardiomyoplasty: MT, methods
*Cell Transplantation
Cell Transplantation: MT, methods
Immunohistochemistry
*Muscle, Skeletal: CY, cytology
*Myocardium: PA, pathology
Rabbits
Regeneration
Transplantation, Autologous

L22 ANSWER 12 OF 15 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2000:24789 BIOSIS
DOCUMENT NUMBER: PREV200000024789
TITLE: Cell type is critical in improving systolic function: In vivo comparison of **transplanted myoblasts** vs. **fibroblasts** in rabbit cryoinjured myocardium.
AUTHOR(S): Hutcheson, Kelley A. (1); Atkins, B. Zane (1); Hopkins, Michael B. (1); Glower, Donald D. (1); Taylor, Doris A. (1)
CORPORATE SOURCE: (1) Duke Univ Med Ctr, Durham, NC USA
SOURCE: Circulation, (Nov. 2, 1999) Vol. 110, No. 18 SUPPL., pp. I.413.
Meeting Info.: 72nd Scientific Sessions of the American Heart Association Atlanta, Georgia, USA November 7-10, 1999
ISSN: 0009-7322.
DOCUMENT TYPE: Conference
LANGUAGE: English
TI Cell type is critical in improving systolic function: In vivo comparison of **transplanted myoblasts** vs. **fibroblasts** in rabbit cryoinjured myocardium.
IT . . . Concepts
Cardiovascular System (Transport and Circulation)
IT Parts, Structures, & Systems of Organisms
myoblast: muscular system
IT Diseases
cryoinjured myocardium: **heart** disease, injury

IT Miscellaneous Descriptors
systolic function: cell type; **transplanted** myoblasts; Meeting Abstract

L22 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:795115 CAPLUS
DOCUMENT NUMBER: 130:43430
TITLE: **Transplants** for myocardial scars and method and cellular preparations therefor
INVENTOR(S): Mickle, Donald A. G.; Li, Ren-ke; Weisel, Richard D.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9854301 | A2 | 19981203 | WO 1998-CA520 | 19980528 |
| WO 9854301 | A3 | 19990401 | | |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| US 6110459 | A | 20000829 | US 1997-863882 | 19970528 |
| AU 9876331 | A1 | 19981230 | AU 1998-76331 | 19980528 |
| EP 985028 | A2 | 20000315 | EP 1998-923950 | 19980528 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| JP 2002501513 | T2 | 20020115 | JP 1999-500040 | 19980528 |

PRIORITY APPLN. INFO.: US 1997-863882 A2 19970528
WO 1998-CA520 W 19980528

AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

TI **Transplants** for myocardial scars and method and cellular preparations therefor

AB A method is provided for forming a **graft** in **heart** tissue which comprises the **transplantation** of cells chosen from cardiomyocytes, **fibroblasts**, smooth muscle cells, endothelial cells and skeletal **myoblasts**. The **grafts** are esp. useful in treating scar tissue on the **heart**. Also provided is a method of isolating and culturing cardiomyocytes for use in such **grafts**.

ST **transplant heart** scar cell

IT **Heart**
(atrium; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Adhesives
(biol.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Blood vessel
(endothelium; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Animal tissue culture
(mammalian; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Physiological saline solutions
(phosphate-buffered; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Muscle
(smooth; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Culture media
Fibroblast
Granulation tissue
**Heart**
Mammal (Mammalia)
Myoblast
**Transplant** and **Transplantation**
Wound
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Enzymes, biological studies
Growth factors, animal
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

IT Transforming growth factors
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(.beta.1-; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT Platelet-derived growth factors
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(.beta.; **transplants** for myocardial scars and method and cellular prepns. therefor)

IT 50-99-7, D-Glucose, biological studies 56-81-5, 1,2,3-Propanetriol, biological studies 60-00-4, Edta, biological studies 60-24-2 9001-12-1, Collagenase 9002-07-7, Trypsin 67763-96-6, Insulin-like growth factor I 67763-97-7, Insulin-like growth factor II 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**transplants** for myocardial scars and method and cellular prepns. therefor)

L22 ANSWER 14 OF 15 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 97052351 MEDLINE
DOCUMENT NUMBER: 97052351 PubMed ID: 8896986

TITLE: Fibroblast growth factor receptor 1 in skeletal and **heart** muscle cells: expression during early avian development and regulation after notochord **transplantation**.
AUTHOR: Grothe C; Brand-Saberi B; Wilting J; Christ B
CORPORATE SOURCE: Institute of Anatomy, University of Freiburg, Germany.
SOURCE: DEVELOPMENTAL DYNAMICS, (1996 Jul) 206 (3) 310-7.
Journal code: 9201927. ISSN: 1058-8388.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199702
ENTRY DATE: Entered STN: 19970305
Last Updated on STN: 19970305
Entered Medline: 19970219

AB Basic **fibroblast** growth factor (bFGF, FGF-2) mediates several biological functions during embryonic development. With regard to skeletal muscle formation, it has been suggested that FGF-2 is involved in the growth and differentiation of myogenic precursor cells. To identify the FGF-responsive cells we studied the expression of FGF receptor type I (FGFR-1) during early embryonic development of the chick. FGFR-1 immunoreactivity is present at all stages examined (embryonic day [E] 2-E5). Expression of FGFR-1 is found in the somite myotome, limb bud muscle cells, eye and tongue muscle cells, and myocardium. **Transplantation** of an additional notochord into the paraxial mesoderm, which prevents the formation of a myotome, reveals the absence of FGFR-1 immunoreactivity on the operated side. The distinct expression pattern of FGFR-1 in migrating and differentiating muscle cells indicates that in addition to the stimulation of proliferation of **myoblasts**, FGF-2 exerts other (nonmitogenic) effects on postmitotic myocytes.

TI Fibroblast growth factor receptor 1 in skeletal and **heart** muscle cells: expression during early avian development and regulation after notochord **transplantation**.

AB Basic **fibroblast** growth factor (bFGF, FGF-2) mediates several biological functions during embryonic development. With regard to skeletal muscle formation, it has been. . . Expression of FGFR-1 is found in the somite myotome, limb bud muscle cells, eye and tongue muscle cells, and myocardium. **Transplantation** of an additional notochord into the paraxial mesoderm, which prevents the formation of a myotome, reveals the absence of FGFR-1. . . expression pattern of FGFR-1 in migrating and differentiating muscle cells indicates that in addition to the stimulation of proliferation of **myoblasts**, FGF-2 exerts other (nonmitogenic) effects on postmitotic myocytes.

CT . . .

Division
Chick Embryo
Coturnix: EM, embryology
DNA-Binding Proteins: BI, biosynthesis
DNA-Binding Proteins: GE, genetics
*Embryonic Induction
Gene Expression Regulation, Developmental
**Heart: EM, embryology**
In Situ Hybridization
*Muscle Proteins: BI, biosynthesis
Muscle Proteins: GE, genetics
Muscle, Skeletal: EM, embryology
*Muscle, Skeletal: ME, metabolism
*Myocardium: ME, metabolism
***Notochord: TR, transplantation**
*Receptors, Fibroblast Growth Factor: BI, biosynthesis
Receptors, Fibroblast Growth Factor: GE, genetics

L22 ANSWER 15 OF 15 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96140240 EMBASE
DOCUMENT NUMBER: 1996140240
TITLE: Preparation of hybrid muscular tissue composed of skeletal muscle cells and collagen.
AUTHOR: Okano T.; Oka T.; Matsuda T.
CORPORATE SOURCE: Department of Biomedical Engineering, Natl. Cardiovascular Ctr. Res. Inst., 5-7-1 Fujishirodai,Suita, Osaka 565, Japan
SOURCE: Japanese Journal of Artificial Organs, (1996) 25/1 (197-203).
ISSN: 0300-0818 CODEN: JNZKA7
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese

AB We devised disc-type, polyester mesh-enforced sheet-type and tubular hybrid tissues, in which **myoblasts** (Mbs) of skeletal muscle cells (SKCs) were embedded in type I collagen gels and then differentiated into muscle fibers upon culture. Primary culture of **satellite** cells of SKCs, harvested from thigh muscle of newborn and fetal rat, failed due to contaminated **fibroblasts** which dominated at a prolonged culture period. On the other hand, hybrid muscular tissues were prepared using Mbs (C2C12 mouse cell line) and collagen. A cold mixed solution of the cells and type I collagen was poured into three different types of molds and were kept at 37.degree.C in an incubator to form SKCs-embedded gels. Polyester mesh was incorporated into a sheet-type gel. Tubular tissue was prepared by pouring a mixed solution into a tubular mold of an outer sheath and a mandrel and subsequently by culturing after deassembling the outer sheath. Mbs were cultured in 20% FCS-DMEM for first 4 days and then in 22% horse serum-DMEM for later 10 days. Transparent fragile gels are prepared were time-dependently shrunk to form opaque gels, irrespective of the model. At 14 days-incubation, proliferated Mbs fused and differentiated to form multinucleated muscle fibers. Hybrid tissue became time-dependently dense and both collagen and cells were circumferentially oriented. We discuss the possibility of use as a **transplantation** vehicle for reconstruction of damaged and diseased skeletal and **cardiac** muscle tissues.

AB We devised disc-type, polyester mesh-enforced sheet-type and tubular hybrid tissues, in which **myoblasts** (Mbs) of skeletal muscle cells (SKCs) were embedded in type I collagen gels and then differentiated into muscle fibers upon culture. Primary culture of **satellite** cells of SKCs, harvested from thigh muscle of newborn and fetal rat, failed due to contaminated **fibroblasts** which dominated at a prolonged culture period. On the other hand, hybrid muscular tissues were prepared using Mbs (C2C12 mouse. . . tissue became time-dependently dense and both collagen and cells were circumferentially oriented. We discuss the possibility of use as a **transplantation** vehicle for reconstruction of damaged and diseased skeletal and **cardiac**

muscle tissues.

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=> dis his

     (FILE 'HOME' ENTERED AT 08:10:54 ON 09 JUL 2002)

     FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1          4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2          1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3             0 S L2 AND  LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
L4             1 S L2 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L5             2 S L2   AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6             2 DUP REM L5 (0 DUPLICATES REMOVED)
L7             1 S L6 NOT L4
L8          6089 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P
L9          1256 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR
L10            1 S L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L11            2 S L9    AND COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR
L12           19 S L9 AND (CARDIAC OR HEART) AND TRANSPLANT?
L13           10 DUP REM L12 (9 DUPLICATES REMOVED)
L14            4 S GATA? AND L9
L15            1 DUP REM L14 (3 DUPLICATES REMOVED)
L16         4184 S (  MYOBLAST? OR SATELLITE ) (P) (FIBROBLAST? OR (L (1N) CELL?
L17            8 S L16 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L18            8 S L16 AND  COLLAGEN  AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L19           14 S L17 OR L18
L20            8 DUP REM L19 (6 DUPLICATES REMOVED)
L21           32 S L16 AND (CARDIAC OR HEART OR MYOCOCARD?) AND (TRANSPLANT? OR G
L22           15 DUP REM L21 (17 DUPLICATES REMOVED)

=> s l16 and (gata4 or gata6)
L23            0 L16 AND (GATA4 OR GATA6)

=> s l16 and (gata?
UNMATCHED LEFT PARENTHESIS 'AND (GATA?'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s l16 and (gata?)
L24            5 L16 AND (GATA?)

=> dup rem l24
PROCESSING COMPLETED FOR L24
L25            2 DUP REM L24 (3 DUPLICATES REMOVED)

=> dis l25 ibib abs kwic

L25  ANSWER 1 OF 2     MEDLINE                              DUPLICATE 1
ACCESSION NUMBER:    96394366     MEDLINE
DOCUMENT NUMBER:     96394366   PubMed ID: 8798472
TITLE:               Identification and characterization of the cell
                     type-specific and developmentally regulated alpha7 integrin
                     gene promoter.
AUTHOR:              Ziober B L; Kramer R H
CORPORATE SOURCE:    Department of Stomatology, University of California, San
                     Francisco, California 94143-0512, USA.
CONTRACT NUMBER:     CA51884 (NCI)
                     DE10306 (NIDCR)
                     DE10564 (NIDCR)
                     +
SOURCE:              JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Sep 13) 271 (37)
                     22915-22.
                     Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY:        United States
                     Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Priority Journals
OTHER SOURCE:        GENBANK-U60419
ENTRY MONTH:         199611
ENTRY DATE:          Entered STN: 19961219
                     Last Updated on STN: 20000303
                     Entered Medline: 19961107
AB   Expression of alpha7 is mainly confined to skeletal and cardiac muscle in
     which it appears to be the major laminin-binding integrin. When
     myoblasts differentiate to myotubes, alpha7 mRNA and protein
     expression is up-regulated. To explore the mechanisms involved in the
     tissue-specific and developmentally regulated expression of alpha7, we
     isolated and characterized a genomic clone containing approximately 2.8
     kilobase pairs (kb) of the 5'-flanking region of the murine alpha7 gene.
     The 5'-flanking region lacks both TATA and CCAAT boxes but contains five
     putative Sp1 binding sites located in a CpG island. Two transcription
     start sites, located near an initiator-like sequence, are 176 and 170 base
     pairs upstream of the translation start site. There are numerous binding
     sites for developmental and cell type-specific transcription factors,
     including AP-1, AP-2, GATA, and several AT-rich sites. There are
     also eight consensus E-boxes that bind the basic helix-loop-helix family
     of muscle-specific transcription factors. The approximately 2.8-kb
     5'-flanking region was an active promoter in C2C12 skeletal
     myoblasts and exhibited increased expression upon conversion to
     myotubes but was inactive in HtLM2 cells, a mouse breast carcinoma
     epithelial cell line that does not express alpha7. Deletion analysis
     identified both positive and negative regulatory elements within the
     approximately 2.8-kb fragment. In 10T1/2 fibroblasts the
     approximately 2.8-kb alpha7 promoter was trans-activated by the myogenic
     basic helix-loop-helix proteins myogenin and MyoD but not by MRF4 and
     myf5. These results suggest that muscle-specific transcription factors
     play a role in regulating the cell-type expression of the alpha7 gene
     during development.
AB   .  .  .  alpha7 is mainly confined to skeletal and cardiac muscle in which
     it appears to be the major laminin-binding integrin. When
     myoblasts differentiate to myotubes, alpha7 mRNA and protein
     expression is up-regulated. To explore the mechanisms involved in the
     tissue-specific and developmentally.  .  .  of the translation start site.
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     conversion to myotubes but was inactive in HtLM2 cells, a mouse breast
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     analysis identified both positive and negative regulatory elements within
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the approximately 2.8-kb fragment. In 10T1/2 **fibroblasts** the approximately 2.8-kb alpha7 promoter was trans-activated by the myogenic basic helix-loop-helix proteins myogenin and MyoD but not by MRF4. . .

=> dis l25 ibib abs kwic 2

L25 ANSWER 2 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1995:347994 BIOSIS
DOCUMENT NUMBER: PREV199598362294
TITLE: Ligand-independent activation of tyrosine kinase in fibroblast growth factor receptor 1 by fusion with beta-galactosidase.
AUTHOR(S): Kouhara, Haruhiko; Kurebayashi, Shogo; Hashimoto, Kunihiko; Kasayama, Soji; Koga, Masafumi; Kishimoto, Takamitsu; Sato, Bunzo (1)
CORPORATE SOURCE: (1) Third Dep. Intern. Med., Nissei Hosp., 6-3-8 Itachibori Nishi-ku, Osaka 550 Japan
SOURCE: Oncogene, (1995) Vol. 10, No. 12, pp. 2315-2322. ISSN: 0950-9232.
DOCUMENT TYPE: Article
LANGUAGE: English
AB To examine the biological role of **fibroblast** growth factor receptor 1 (FGFR1) oligomerization for its signal transduction, we construct an expression vector encoding a FGFR1-beta-galactosidase fusion protein. This vector is designed to fuse the 3'-portion of FGFR1 to beta-galactosidase. Transfection of this vector into FGFR-negative rat L6 **myoblast** cells results in ligand-independent inhibition of differentiation into myocytes, suggesting that FGFR1 within this fusion protein is constitutively activated. This can be confirmed by demonstrating that this fusion protein exhibits the tyrosine kinase activity and phospholipase C-gamma-1 is tyrosine-phosphorylated even in the absence of ligand stimuli. Since the transfected cells also exhibit the enzyme activity of beta-**galactosidase** which is known to be active only in a tetramer form, this constitutive activation can be elicited by tetramerization of FGFR1. Furthermore, deletion of a region corresponding to C terminal 10 amino acids important for tetramerization of beta-galactosidase from this expression vector abolishes the constitutively active nature of FGFR1 with simultaneous loss of beta-galactosidase activity. Transfection of non-deleted expression vector into NIH3T3 cells results in acquisition of focus-forming activity while a deleted form of expression vector fails to show this activity even in the presence of basic FGF. These results would suggest that tetramerization of FGFR1 can produce a constitutively active form responsible for transformation of NIH3T3 cells.
AB To examine the biological role of **fibroblast** growth factor receptor 1 (FGFR1) oligomerization for its signal transduction, we construct an expression vector encoding a FGFR1-beta-galactosidase fusion protein.. . . This vector is designed to fuse the 3'-portion of FGFR1 to beta-galactosidase. Transfection of this vector into FGFR-negative rat L6 **myoblast** cells results in ligand-independent inhibition of differentiation into myocytes, suggesting that FGFR1 within this fusion protein is constitutively activated. This. . . C-gamma-1 is tyrosine-phosphorylated even in the absence of ligand stimuli. Since the transfected cells also exhibit the enzyme activity of beta-**galactosidase** which is known to be active only in a tetramer form, this constitutive activation can be elicited by tetramerization of. . .

=> dis his

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FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 08:11:40 ON 09 JUL 2002
L1 4004 S (MYOBLAST? OR SATELLITE) (P) FIBROBLAST?
L2 1170 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE) (P) FIBROBLAST?
L3 0 S L2 AND LYSINE AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWT
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L5 2 S L2 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR)
L6 2 DUP REM L5 (0 DUPLICATES REMOVED)
L7 1 S L6 NOT L4
L8 6089 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE OR (L (1N) CELLS)) (P
L9 1256 S ( (SKELET? (1N) MYOBLAST?) OR SATELLITE ) (P) (FIBROBLAST? OR
L10 1 S L9 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
L11 2 S L9 AND COLLAGEN AND (EGF OR (EPIDERMAL (1N) GROWTH FACTOR
L12 19 S L9 AND (CARDIAC OR HEART) AND TRANSPLANT?
L13 10 DUP REM L12 (9 DUPLICATES REMOVED)
L14 4 S GATA? AND L9
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L16 4184 S ( MYOBLAST? OR SATELLITE ) (P) (FIBROBLAST? OR (L (1N) CELL?
L17 8 S L16 AND LAMININ AND (EGF OR (EPIDERMAL (1N) GROWTH (1N) FACTO
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L19 14 S L17 OR L18
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L23 0 S L16 AND (GATA4 OR GATA6)
L24 5 S L16 AND (GATA?)
L25 2 DUP REM L24 (3 DUPLICATES REMOVED)

=> s l2 and culture?
L26 556 L2 AND CULTURE?

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3 FILES SEARCHED...
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=> s l2 (P) culture?
L28 473 L2 (P) CULTURE?

=> s l28 and PD<19990723
'19990723' NOT A VALID FIELD CODE
3 FILES SEARCHED...
L29 290 L28 AND PD<19990723

=> dup rem l29
PROCESSING COMPLETED FOR L29
L30 145 DUP REM L29 (145 DUPLICATES REMOVED)

=> dis l30 50-75 ibib abs

L30 ANSWER 50 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 39

ACCESSION NUMBER: 1993:463605 CAPLUS
DOCUMENT NUMBER: 119:63605
TITLE: Immunocytochemical localization of insulin receptors on rat superior cervical ganglion neurons in dissociated cell culture
AUTHOR(S): James, Sharon; Patel, N. J.; Thomas, P. K.; Burnstock, G.
CORPORATE SOURCE: Dep. Anat. Dev. Biol., Univ. College London, London, UK
SOURCE: J. Anat. (1993), 182(1), 95-100
CODEN: JOANAY; ISSN: 0021-8782
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Cells in dissocd. **culture** prepns. of the cervical ganglion of the adult rat were examd. for the presence of insulin receptors. This was assessed immunocytochem. by the demonstration of binding by a mouse monoclonal anti-insulin receptor antibody. A large subpopulation (.gtoreq.90%) of neuronal cell bodies and assocd. neurites exhibited pos. immunostaining. The apparent absence of staining over nuclear regions suggested that the majority of neuronal receptors had an intracytoplasmic localization. In contrast, a subpopulation of **fibroblasts** showed punctate immunostaining, which appeared to be confined to the cell surface. Glial (**satellite**) cells did not appear to be immunostained. The possible effects of insulin on neurons in the peripheral nervous system are discussed.

L30 ANSWER 51 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 40
ACCESSION NUMBER: 1993:21507 CAPLUS
DOCUMENT NUMBER: 118:21507
TITLE: The effect of the .beta.-adrenergic agonist clenbuterol on growth and protein metabolism in rat muscle cell cultures
AUTHOR(S): McMillan, D. Nelson; Noble, Brendon S.; Maltin, Charlotte A.
CORPORATE SOURCE: Physiol. Div., Rowett Res. Inst., Aberdeen, AB2 9SB, UK
SOURCE: J. Anim. Sci. (1992), 70(10), 3014-23
CODEN: JANSAG; ISSN: 0021-8812
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Cultures** were established from neonatal rat muscle cells, **satellite** cells, and L6 myoblasts and changes in protein metab. were detd. as development proceeded. For all 3 cell types, **culture** protein content increased with increasing myotube content. The .beta.-adrenergic agonist clenbuterol (added to a final concn. of 10-7M) significantly stimulated fusion (as indicated by creatine kinase activity) in neonatal muscle **cultures** and also increased **culture** protein content. This was assocd. with a stimulation in both the fractional (KS, percentage/day, +13%) and abs. (AS, .mu.g/day, +19%) rates of protein synthesis within 24 h after drug administration. At 48 h, AS was increased by 42% above that of controls. In contrast, in **satellite** cell **cultures**, clenbuterol had no consistent effects on either protein accretion, creatine kinase activity, or protein synthesis (KS and AS). Similarly, the drug had no stimulatory effect on protein synthesis and protein accretion in L6 myoblast or L6 myotube **cultures** (and no effect in neonatally derived **fibroblast cultures**). The fusion response to clenbuterol and, therefore, changes in protein metab. and protein accretion apparently are greatly dependent on the origin and genetic integrity of muscle cells.

L30 ANSWER 52 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 93030445 EMBASE
DOCUMENT NUMBER: 1993030445
TITLE: Prenatal diagnosis of Pallister-Killian syndrome: Resolution of cytogenetic ambiguity by use of fluorescent in situ hybridization.
AUTHOR: McLean S.; Stanley W.; Stern H.; Fonda-Allen J.; Devine G.; Ellingham T.; Rosenbaum K.
CORPORATE SOURCE: Department of Medical Genetics, Children's National Medical Center, 111 Michigan Avenue, N.W.,Washington, DC 20010-2970, United States
SOURCE: Prenatal Diagnosis, (1992) 12/12 (985-991).
ISSN: 0197-3851 CODEN: PRDIDM
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 005 General Pathology and Pathological Anatomy
010 Obstetrics and Gynecology
022 Human Genetics
LANGUAGE: English
SUMMARY LANGUAGE: English

AB We report a case of Pallister-Killian syndrome initially diagnosed prenatally as tetrasomy 21. A 33-year-old primiparous woman was noted at 24 weeks' gestation to have moderate polyhydramnios. Ultrasonography showed diminished fetal stomach filling, hydronephrosis, and prominence of the cisterna magna. Cytogenetic analysis of **cultured** amniocytes was initially interpreted as mosaic tetrasomy 21: 46,XX/47,XX, + i(21q). The patient was then referred to our centre for genetic counselling. At 34 weeks' gestation, a dysmorphic infant was delivered and died within 30 min. Physical features were consistent with the Pallister-Killian syndrome. Renal, gastrointestinal, and central nervous system anomalies were found at post-mortem examination. Analysis of peripheral lymphocytes revealed 5 per cent of cells with a marker chromosome, while 92 per cent of **cultured fibroblasts** had this same marker.
Fluorescent in situ hybridization (FISH) using an alpha-**satellite** probe for chromosomes 13 and 21 failed to hybridize to the marker, while a chromosome 12 centromeric probe unequivocally identified it as an i(12p). Use of FISH can provide rapid, specific prenatal diagnosis of ambiguous marker chromosomes and improve prenatal counselling.

L30 ANSWER 53 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 41
ACCESSION NUMBER: 92142656 EMBASE
DOCUMENT NUMBER: 1992142656
TITLE: Failure of PHA-stimulated i(12p) lymphocytes to divide in Pallister- Killian syndrome.
AUTHOR: Thornburg Reeser S.L.; Wenger S.L.
CORPORATE SOURCE: Division of Medical Genetics, Children's Hospital of Pittsburgh, 3705 Fifth Avenue at DeSoto St.,Pittsburgh, PA 15213-2583, United States
SOURCE: American Journal of Medical Genetics, (1992) 42/6 (815-819).
ISSN: 0148-7299 CODEN: AJMGDA
COUNTRY: United States
DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 022 Human Genetics
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The diagnosis of Pallister-Killian syndrome (PKS) is confirmed by tissue-specific mosaicism of i(12p). The isochromosome is found in skin **fibroblasts** and bone marrow, but rarely in peripheral lymphocytes. The nature of the isochromosome loss was evaluated using 2 techniques: micronucleus formation for anaphase lag and in situ DNA hybridization for mosaicism in interphase cells. Cells from serial **cultured** **fibroblasts**, peripheral blood lymphocytes, and bone marrow from 4 PKS patients were used for the above analysis. Micronucleus formation was similar for PKS and normal diploid **cultures**, ruling out loss of i(12p) by anaphase lag as the major mechanism of in vitro mosaicism. In situ hybridization using an alpha **satellite** DNA probe for chromosome 12 was used to examine the presence of the i(12p) in interphase **fibroblasts** from 1 patient and lymphocytes from 2 patients (age 8 weeks and 1 day). The i(12p) was present in a significantly higher proportion of interphase nuclei in peripheral lymphocytes than in metaphase, suggesting the initial loss of the isochromosome is exaggerated in metaphase by selective division in vitro. In situ hybridization of peripheral lymphocyte interphase cells with chromosome 12 specific probes may be a useful supplemental procedure for the diagnosis of PKS, at least in the newborn infant.

L30 ANSWER 54 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 42
ACCESSION NUMBER: 92363303 EMBASE
DOCUMENT NUMBER: 1992363303
TITLE: Latency in vitro of varicella-zoster virus in cells derived from human fetal dorsal root ganglia.
AUTHOR: Somekh E.; Tedder D.G.; Vafai A.; Assouline J.G.; Straus S.E.; Wilcox C.L.; Levin M.J.
CORPORATE SOURCE: Infectious Diseases Section, Colorado Univ. Health Sciences Ctr., Campus Box C-227, 4200 E. Ninth Ave.,Denver, CO 80262, United States
SOURCE: Pediatric Research, (**1992**) 32/6 (699-703).
ISSN: 0031-3998 CODEN: PEREBL
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
007 Pediatrics and Pediatric Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A potential in vitro model of varicella-zoster virus (VZV) latency was developed. Dissociated human dorsal root ganglion **cultures** were infected with VZV and maintained for 1 wk in the presence of bromovinyl arabinosyl uracil, a potent inhibitor of VZV. Seven to 21 d after removing the inhibitor (.gtoreq.14 d after infection), the cells were trypsinized, passed to monolayers of human embryonic lung **fibroblasts**, and observed for VZV reactivation as indicated by typical cytopathic effects and the appearance of VZV antigens. VZV reactivated from 56% of the **cultures** containing both neurons and **satellite** cells but not from **cultures** specifically enriched for either neurons, **satellite** cells, or ganglion-derived **fibroblasts**. The failure to isolate VZV from cell suspensions that were sonicated before cocultivation with **fibroblasts** indicated that infectious VZV was not present before reactivation. Moreover, immunohistochemical and immunoprecipitation studies revealed no VZV-specific antigens in any **cultures** before the reactivation stimulus. VZV antigens were detected after trypsinization and cocultivation. These findings suggest that **cultures** containing both neurons and **satellite** cells provide a model system for VZV persistence that possesses many properties of a latent infection.

L30 ANSWER 55 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 43
ACCESSION NUMBER: 92286944 EMBASE
DOCUMENT NUMBER: 1992286944
TITLE: Division and migration of satellite glia in the embryonic rat superior cervical ganglion.
AUTHOR: Hall A.K.; Landis S.C.
CORPORATE SOURCE: Department of Neurosciences, Case Western Reserve University, School of Medicine,Cleveland, OH 44106, United States
SOURCE: Journal of Neurocytology, (**1992**) 21/9 (635-647).
ISSN: 0300-4864 CODEN: JNCYA2
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 001 Anatomy, Anthropology, Embryology and Histology
021 Developmental Biology and Teratology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB While distinct precursors committed to a neuronal or glial cell fate are generated from neural crest cells early in peripheral gangliogenesis, little is known about the subsequent generation and maturation of young **satellite** glia from restricted glial precursor cells. To examine the division and migration of glial precursor cells and their **satellite** cell progeny, morphological, immunocytochemical and **culture** techniques were applied to the developing rat superior cervical ganglion. At embryonic day (E)18.5, numerous clusters of nonneuronal cells appeared transiently in the ganglion. Individual cells with a similar morphology were present in E16.5 ganglia, and are likely to represent the precursor cells which generate these clusters. The clustered cells were distinguishable from neighbouring neurons as well as from endothelial cells and **fibroblasts**. Morphologically similar cells were present in nerve bundles at E18.5 and surrounding principal neurons and nerve bundles in the adult ganglion. Double-label studies of the E18.5 ganglion with tyrosine hydroxylase to identify noradrenergic neurons and propidium iodide counterstaining to visualize all cell nuclei revealed that the cells in clusters stained with propidium iodide but lacked tyrosine hydroxylase immunoreactivity. To determine if cell clusters arose from division, bromodeoxyuridine, a thymidine analogue, was administered to pregnant mothers between E16.5-E18.5, and ganglionic cells examined at E18.5 both in vivo and in vitro. Numerous non-neuronal cells divided during this period in situ and composed portions of clusters. When dissociated, superior cervical ganglion **satellite** glia reacted with an NGF-receptor antibody (MAb 217c) and possessed a flattened shape, in contrast to bipolar Schwann cells. Over half of the 217c-immunoreactive glia at E18.5 had incorporated bromodeoxyuridine during E16.5-18.5 in vivo. At birth, non-neuronal cells were no longer grouped in clusters, but were associated with neuronal cell bodies and processes. These findings suggest that, between E16.5-E18.5, glial precursors divide rapidly to form clusters, and that, after the peak of neurogenesis, daughter cells migrate within the ganglion to associate with nerve cell bodies and processes where proliferation continues at a slower rate. Distinct cellular and

molecular interactions are likely to trigger the initial rapid division of glial precursors, initiate their migration and association with neuron cell bodies, and control their subsequent slower division.

L30 ANSWER 56 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 44
ACCESSION NUMBER: 1992:463309 CAPLUS
DOCUMENT NUMBER: 117:63309
TITLE: ACTH-like peptides in postimplantation mouse embryos: a possible role in myoblast proliferation and muscle histogenesis
AUTHOR(S): De Angelis, L.; Cusella-De Angelis, M. G.; Bouche, M.; Vivarelli, E.; Boitani, C.; Molinaro, M.; Cossu, G.
CORPORATE SOURCE: Ist. Istol. Embriol. Gen., Univ. Roma "La Sapienza", Rome, 00161, Italy
SOURCE: Dev. Biol. (**1992**), 151(2), 446-58
CODEN: DEBIAO; ISSN: 0012-1606
DOCUMENT TYPE: Journal
LANGUAGE: English
AB ACTH and related peptides are mitogens for certain mesodermal cell types such as adrenocortical cells, T-lymphocytes, and **skeletal myoblasts**. In order to postulate a possible physiol. role for these peptides in skeletal muscle histogenesis, it is necessary to establish whether they are present in muscle forming anlagens of postimplantation mouse embryos. RIA and immunofluorescence with antibodies specific for ACTH detected these peptides in many areas of mouse embryos including neural tube, limb buds, eye lens, and myotomal muscles. During fetal development, immunoreactivity decreased in muscle tissue and appeared in visceral ganglia. Furthermore, primary myotubes or C2C12 myotubes, but not muscle or 3T3 **fibroblasts**, release significant levels of ACTH immunoreactive peptides into the **culture** medium. Using a microassay for mitogen prodn., primary myotubes or C2C12 myotubes, but not other mesodermal cells (with the exception of dermal **fibroblasts**) were shown to release factors into the medium which support myoblast proliferation. Neutralizing antibodies against ACTH inhibit myoblast, but not **fibroblast**, proliferation in a dose-dependent fashion. These results propose that myotube-derived mitogens (including ACTH-like peptides) promote the proliferation of surrounding myoblast during muscle histogenesis in vivo.

L30 ANSWER 57 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 93050781 EMBASE
DOCUMENT NUMBER: 1993050781
TITLE: Trisomy 21 mosaicism in two subjects from two generations.
AUTHOR: Casati A.; Giorgi R.; Lanza A.; Raimondi E.; Vagnarelli P.; Mondella C.; Ghetti P.; Piazzi G.; Nuzzo F.
CORPORATE SOURCE: Ist. Genetica Biochimica/Evoluzion., CNR, Via Abbiategrasso, 207,I-27100 Pavia, Italy
SOURCE: Annales de Genetique, (**1992**) 35/4 (245-250).
ISSN: 0003-3995 CODEN: AGTQAH
COUNTRY: France
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 005 General Pathology and Pathological Anatomy
021 Developmental Biology and Teratology
022 Human Genetics
LANGUAGE: English
SUMMARY LANGUAGE: English; French
AB In the course of a chromosome fragility investigation on the cancer prone hereditary disorder xeroderma pigmentosum, a low proportion of cells with a 47,XY,+21 karyotype was found in lymphocyte **cultures** of a patient not showing any Down syndrome symptom. The presence of trisomy 21 mosaicism was demonstrated also in peripheral blood of the healthy father and confirmed by 'chromosome painting' that allowed a rapid detection of chromosomes 21 on metaphase cells and interphase nuclei. The trisomic cell line was not detected in **fibroblast cultures**. The analysis of chromosome 21 heteromorphism indicated that in both subjects the mosaic could result from either a diploid or an aneuploid zygote. Since in the trisomic cell line of the father and the son the extra chromosome 21 seems to be the same, a predisposition toward mitotic errors (non-disjunction or anaphase lagging) may be postulated, leading to the recurrent gain or loss of a specific chromosome 21. In order to test the hypothesis of an abnormal mitotic behaviour of the chromosome 21, we investigated the centromere separation index and the DNA restriction pattern in Southern blots probed with **satellite** DNA sequences specific for chromosome 21 centromere. Both the approaches did not reveal any peculiar feature that may account for the genetically determined proneness to mitotic error observed in the family.

L30 ANSWER 58 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 45
ACCESSION NUMBER: 1993:16876 CAPLUS
DOCUMENT NUMBER: 118:16876
TITLE: FGF-mediated aspects of skeletal muscle growth and differentiation are controlled by a high affinity receptor, FGFR1
AUTHOR(S): Templeton, Thomas J.; Hauschka, Stephen D.
CORPORATE SOURCE: Dep. Biochem., Univ. Washington, Seattle, WA, 98195, USA
SOURCE: Dev. Biol. (**1992**), 154(1), 169-81
CODEN: DEBIAO; ISSN: 0012-1606
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Fibroblast** growth factors (FGFs) and FGF receptors (FGFRs) play major roles in vertebrate embryogenesis, including control of skeletal muscle growth and differentiation. The FGFR transcripts found in a model mouse **skeletal myoblast** cell line (MM14) during growth and terminal differentiation have been analyzed. MM14 cells express transcripts for FGFR1 (flg) but not FGFR2 (bek). The predominate FGFR1 transcript contains three Ig-like domains in the extracellular ligand binding region. Approx. one-fourth of the three Ig-like domain transcripts possess a 6-nucleotide deletion between the 1st and 2nd Ig-like domains which after translation would result in deletion of an Arg-Arg pair. Cloning of mouse genomic DNA surrounding the region of the FGFR1 6-nucleotide deletion indicates that the deletion is derived by alternative splicing of FGFR1 transcripts. Transcripts contg. two Ig-like domains account for less than 5% of total FGFR1 mRNA in MM14 cells. A survey of RNA from mouse tissues indicated that two Ig-like domain FGFR1 transcripts are rare in all tissues except in the lung, in which the two Ig-like domain form accounts for roughly 70% of the lung FGFR1 mRNA. PCR RACE cloning studies disclosed 162 nucleotides of addnl. FGFR1 5'-flanking RNA which was highly GC-rich. FGFR1 transcripts decline 8-10-fold during low serum, (-)FGF-mediated differentiation of MM14 **cultures**. The kinetics of the FGFR1 mRNA decline is similar to the previously described differentiation-dependent decrease in cell surface FGF receptors.

L30 ANSWER 59 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 46
ACCESSION NUMBER: 1993:98481 CAPLUS
DOCUMENT NUMBER: 118:98481
TITLE: Membrane-bound acetylcholinesterase: an early differentiation marker for skeletal myoblasts
AUTHOR(S): Elson, Hannah Friedman; Gentry, Mary K.; Doctor, Bhupendra P.
CORPORATE SOURCE: Dep. Biol. Chem., Div. Biochem., Walter Reed Army Inst. Res., Washington, DC, USA
SOURCE: Biochim. Biophys. Acta (1992), 1156(1), 78-84
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Cell-bound acetylcholinesterase (AChE) was found to be an early differentiation marker on embryonic chick **skeletal myoblasts** in mixed primary cell **cultures**. AChE biosynthesis was detected and characterized by a sensitive microtiter assay, use of selective inhibitors, and with mono- and polyclonal antibodies. Both secreted and cell-bound AChE appeared on the first day in **culture**, at a time when no muscle cell fusion was obsd. Characterization of this enzyme revealed that true AChE was bound and secreted by myoblasts. BW284c51, which permeates cell membranes poorly, inhibited all the cell-assocd. AChE activity on myoblasts, suggesting that the activity measured was on the outer cell surface. On the other hand, **fibroblasts** appeared to have no or very little bound enzyme, and the low level of secreted enzyme activity had the characteristics of pseudo- or butyrylcholinesterase. Polyclonal anti-Torpedo californica electroplax AChE antibody and several monoclonal antibodies were found to bind specifically to chick myoblasts. Since the cells had not been made permeable before antibody binding, a membrane-bound form of the enzyme was most likely being detected. The cell-bound true AChE was present in identifiable quantities from the first day of **culture**. Thus, membrane-bound AChE can serve as an early differentiation marker for embryonic chick myoblasts in mixed primary **cultures**.

L30 ANSWER 60 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 93004909 EMBASE
DOCUMENT NUMBER: 1993004909
TITLE: Membrane-bound acetylcholinesterase: An early differentiation marker for skeletal myoblasts.
AUTHOR: Friedman Elson H.; Gentry M.K.; Doctor B.P.
CORPORATE SOURCE: Division of Biochemistry, Walter Reed Army Inst. of Research,Washington, DC 20307-5100, United States
SOURCE: Biochimica et Biophysica Acta - General Subjects, (**1992**) 1156/1 (78-84).
ISSN: 0304-4165 CODEN: BBGSB3
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 021 Developmental Biology and Teratology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Cell-bound acetylcholinesterase (AChE) was found to be an early differentiation marker on embryonic chick **skeletal myoblasts** in mixed primary cell **cultures**. AChE biosynthesis was detected and characterized by (a) a sensitive microtiter assay, (b) use of selective inhibitors, and (c) with mono- and polyclonal antibodies. Both secreted and cell-bound AChE appeared on the first day in **culture**, at a time when no muscle cell fusion was observed. Characterization of this enzyme revealed that true AChE was bound and secreted by myoblasts. BW284c51, which permeates cell membranes poorly, inhibited all the cell-associated AChE activity on myoblasts, suggesting that the activity measured was on the outer cell surface. On the other hand, **fibroblasts** appeared to have no or very little bound enzyme and the low level of secreted enzyme activity had the characteristics of pseudo-, or butyrylcholinesterase. Polyclonal anti-Torpedo californica electroplax AChE antibody and several monoclonal antibodies were found to bind specifically to chick myoblasts. Since the cells had not been made permeable before antibody binding, a membrane-bound form of the enzyme was most likely being detected. The cell-bound true AChE was present in identifiable quantities from the first day of **culture**. Membrane-bound AChE can thus serve as an early differentiation marker for embryonic chick myoblasts in mixed primary **cultures**.

L30 ANSWER 61 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 47
ACCESSION NUMBER: 92266999 EMBASE
DOCUMENT NUMBER: 1992266999
TITLE: Xp22.3 microdeletion syndrome with microphthalmia, sclerocornea, linear skin defects, and congenital heart defects.
AUTHOR: Lindor N.M.; Michels V.V.; Hoppe D.A.; Driscoll D.J.; Leavitt J.A.; Dewald G.W.
CORPORATE SOURCE: Department of Medical Genetics, Mayo Clinic, 200 First Street SW,Rochester, MN 55905, United States
SOURCE: American Journal of Medical Genetics, (**1992**) 44/1 (61-65).
ISSN: 0148-7299 CODEN: AJMGDA
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 007 Pediatrics and Pediatric Surgery
021 Developmental Biology and Teratology
022 Human Genetics
LANGUAGE: English
SUMMARY LANGUAGE: English
AB We report on an infant girl with congenital erythematous, linear skin lesions on face and neck, bilateral microphthalmia, sclerocornea, cataracts, and a complex cardiac anomaly including atrial septal and ventricular septal defects. This patient had an Xp22.3 microdeletion and a chromosome **satellite** on the abnormal X p-arm. The abnormal X chromosome was late replicating in peripheral blood lymphocytes and **cultured** skin **fibroblasts**. Four other patients with similar congenital anomalies and Xp deficiency have been reported previously and are compared with this patient. One patient had an interstitial or terminal deletion, but in others the material translocated to Xp22.3 was variable (Yq material in two patients, and Yp material and an unidentifiable **satellite** in one patient each). Several mechanisms are suggested by which this chromosome abnormality might produce this phenotype in these patients. Our patient is the first with this syndrome to have a congenital heart defect.

L30 ANSWER 62 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 48
ACCESSION NUMBER: 1991:676632 CAPLUS
DOCUMENT NUMBER: 115:276632
TITLE: Jun inhibits myogenic differentiation
AUTHOR(S): Su, Heyun; Bos, Timothy J.; Monteclaro, Felipe S.; Vogt, Peter K.
CORPORATE SOURCE: Sch. Med., Univ. South. California, Los Angeles, CA, 90033, USA
SOURCE: Oncogene (1991), 6(10), 1759-84
CODEN: ONCNES; ISSN: 0950-9232
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Myoblasts** from **skeletal** muscle of chicken or Japanese quail embryos were infected with avian sarcoma virus 17 (ASV-17), a retrovirus carrying the jun oncogene. At high multiplicities of infection ASV-17-induced morphol. transformation, inhibited fusion of myoblasts into myotubes and stimulated extended replication. The expression of the muscle-specific proteins desmin, myosin and creatine phosphokinase was inhibited in ASV-17-infected **cultures**. Immunofluorescent staining detected strong expression of the ASV-17 Gag-Jun fusion protein in the nuclei of infected mononuclear myoblasts, but Gag-Jun was not detectable in multinucleated myotubes that occurred in clonal populations of ASV-17-infected quail myoblasts. This result suggests that the nuclear expression of viral jun and myogenic differentiation are mutually exclusive events. A mutant of ASV-17, ts jun-1, is partly temp.-sensitive in its ability to transform chicken embryo **fibroblasts**. At the non-permissive temp. of 41.5.degree., multinucleated myotubes readily formed in ts jun-1-infected myoblast **cultures** and expressed muscle-specific proteins detectable by immunofluorescent staining. These myotubes also showed strong immunofluorescent staining for Gag-Jun in the cell nuclei. The nuclear expression of a Jun protein that is defective in its transforming function appears therefore to be compatible with myogenesis. Several retroviral constructs carrying various viral and cellular jun inserts, as well as jun deletion mutants and recombinants between c-jun and v-jun, were tested for their effect on myogenic differentiation. There was an approx. correlation between the ability of a construct to transform chicken embryo **fibroblasts** and its effectiveness in interfering with myogenic differentiation. The authors conclude that the expression of an oncogenic jun gene in myoblasts strongly inhibits myogenic differentiation, and that a highly transforming Jun protein cannot be expressed in the nuclei of differentiating myotubes, while the presence of transformation-defective variants of Jun is compatible with differentiation.

L30 ANSWER 63 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 49
ACCESSION NUMBER: 1992:38680 CAPLUS
DOCUMENT NUMBER: 116:38680
TITLE: Desmin is present in proliferating rat muscle satellite cells but not in bovine muscle satellite cells
AUTHOR(S): Allen, Ronald E.; Rankin, Lucinda L.; Greene, Elizabeth A.; Boxhorn, Linda K.; Johnson, Sally E.; Taylor, Richard G.; Pierce, Paul R.
CORPORATE SOURCE: Dep. Anim. Sci., Univ. Arizona, Tucson, AZ, 85721, USA
SOURCE: J. Cell. Physiol. (1991), 149(3), 525-35
CODEN: JCLLAX; ISSN: 0021-9541
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The presence of desmin was characterized in **cultured** rat and bovine **satellite** cells and its potential usefulness as a marker for identifying **satellite** cells in vitro was evaluated. In primary **cultures**, pos. immunohistochem. staining for desmin and skeletal muscle myosin was obsd. in rat and bovine myotubes. A small no. of mononucleated cells (20% of rat **satellite** cells and 5% of bovine **satellite** cells) were myosin-pos., indicative of post-mitotic differentiated myocytes.'. In bovine **satellite** cell **cultures** 13% of the mononucleated cells were desmin-pos., while 84% of the mononucleated cells in rat **satellite** cell **cultures** were desmin-pos. Rat **satellite** cell mass **cultures** and bovine **satellite** cell clonal d. **cultures** were pulsed with [3H]thymidine, and autoradiog. data revealed that >94% of dividing rat cells were desmin-pos., suggesting that desmin is synthesized in proliferating rat **satellite** cells. However, no desmin was seen in cells that incorporated labeled thymidine in bovine **satellite** cell clones. Anal. of clonal d. **cultures** revealed that only 14% of the mononucleated cells in bovine **satellite** cell colonies were desmin-pos., whereas 98% of the cells in rat **satellite** cell colonies were desmin-pos. **Fibroblast** colonies from both species were desmin-neg. In order to further examine the relationship between **satellite** cell differentiation and desmin expression, 5-bromo-2'-deoxyuridine (BrdU) was added to **culture** medium at the time of plating to inhibit differentiation. Fusion was inhibited in rat and bovine **cultures**, and cells contained to divide. Very few desmin-pos. cells were found in bovine **cultures**, but >90% of the cells in rat **cultures** stained pos. for desmin. The presence of desmin and sarcomeric myosin was also evaluated in regenerating rat tibialis anterior five days after bupivicaine injection. In regenerating areas of the muscle many desmin-pos. cells were present, and only a few cells stained pos. for skeletal muscle myosin. Application of desmin staining to rat **satellite** cell growth assays indicated that rat **satellite** cells **cultured** in serum-contg. medium were contaminated with **fibroblasts** at levels that ranged from approx. 5% in 24-h **cultures** to 15% in mature **cultures**. In defined medium 4-day **cultures** contain approx. 95% to 98% desmin-pos. **satellite** cells. The effects of combinations of insulin-like growth factor I (IGF-I), basic **fibroblast** growth factor (BFGF), and transforming growth factor beta (TGF-.beta.) on rat **satellite** cell proliferation and differentiation were assessed by desmin staining, and results were found to be consistent with results obtained previously using conventional cell staining and counting techniques. Thus, the pattern of desmin expression in **satellite** cells differs between rat and bovine and desmin can be a useful marker for **cultured** rat **satellite** cells.

L30 ANSWER 64 OF 145 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1991:537187 BIOSIS
DOCUMENT NUMBER: BR41:126922
TITLE: PROLIFERATING CELL NUCLEAR ANTIGEN AND BASIC **FIBROBLAST** GROWTH FACTOR RECEPTOR EXPRESSION AS INDICATORS OF CELL CYCLE PROGRESSION IN RAT **SATELLITE** CELL **CULTURES**.
AUTHOR(S): JOHNSON S E; ALLEN R E

CORPORATE SOURCE: UNIV. ARIZ., TUCSON, ARIZ., USA.
SOURCE: 83RD ANNUAL MEETING OF THE AMERICAN SOCIETY OF ANIMAL SCIENCE, LARAMIE, WYOMING, USA, AUGUST 6-9, 1991. J ANIM SCI, (1991) 69 (SUPPL 1), 290-291.
CODEN: JANSAG. ISSN: 0021-8812.
DOCUMENT TYPE: Conference
FILE SEGMENT: BR; OLD
LANGUAGE: English

L30 ANSWER 65 OF 145 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1992:170535 CAPLUS
DOCUMENT NUMBER: 116:170535
TITLE: Striated myoblasts and multinucleated myotubes induced in nonmuscle cells by MyoD are similar to normal in vivo and in vitro counterparts
AUTHOR(S): Holtzer, H.; Dilullo, C.; Costa, M. L.; Lu, M.; Choi, J.; Mermelstein, C. S.; Schultheiss, T.; Holtzer, S.
CORPORATE SOURCE: Med. Sch., Univ. Pennsylvania, Philadelphia, PA, 19104, USA
SOURCE: Int. Congr. Ser. - Excerpta Med. (1991), 942(Front. Muscle Res.: Myogenesis, Muscle Contract. Muscle Dystrophy), 187-207
CODEN: EXMDA4; ISSN: 0531-5131
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 38 refs. The sequence of events that lead to postmitotic, mononucleated striated myoblasts in (a) stage 15-17 myotomes, (b) stage 23-25 limb buds, (c) conventional **cultures** of presumptive myoblasts from day 10 breast muscles; and (d) Myo-D-converted normal dermal **fibroblasts**, chondroblasts, gizzard smooth muscle, and retinal pigmented epithelial cells. The postmitotic mononucleated myoblasts in these different populations are remarkably similar, and the temporal and spatial sequences of protein-protein interactions that lead to the assembly of sarcomeres in **skeletal myoblasts** are similar to those of cardiac myocytes.

L30 ANSWER 66 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 50
ACCESSION NUMBER: 91128929 EMBASE
DOCUMENT NUMBER: 1991128929
TITLE: Proliferation of the turkey myogenic satellite cell in a serum-free medium.
AUTHOR: McFarland D.C.; Pesall J.E.; Norberg J.M.; Dvoracek M.A.
CORPORATE SOURCE: Dept. of Animal/Range Sciences, Box 2170, South Dakota State University,Brookings, SD 57007-0392, United States
SOURCE: Comparative Biochemistry and Physiology - A Physiology, ( 1991) 99/1-2 (163-167).
ISSN: 0300-9629 CODEN: CBPAB5
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 002 Physiology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB 1. In order to determine factors involved in avian skeletal muscle development, a serum-free medium (TSFM) which supports clonal growth of the turkey myogenic **satellite** cells has been developed. 2. The formulation consists of McCoy's 5A medium with added insulin, **fibroblast** growth factor, Deutsch fetuin, bovine serum albumin, dexamethasone, supplemental minerals and additional organic nutrients. 3. The development of TSFM was made possible by the use of clonal-derived turkey **satellite** cells. These cells allowed direct assessment of proliferation responses without the confounding effects of nonmyogenic cells in **culture**.

L30 ANSWER 67 OF 145 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 51
ACCESSION NUMBER: 91225891 EMBASE
DOCUMENT NUMBER: 1991225891
TITLE: The ultrastructure of cartilage formation form neonatal skeletal muscle in vitro.
AUTHOR: Horisaka Y.; Okamoto Y.; Matsumoto N.; Yoshimura Y.; Kawada J.; Yamashita K.; Takagi T.
CORPORATE SOURCE: Department of Removable Prosthodontics, Tokushima School of Dentistry, 3-18-15 Kuramoto-cho, Tokushima 770, Japan
SOURCE: Archives of Histology and Cytology, (1991) 54/2 (163-172).
ISSN: 0914-9465 CODEN: AHCYEZ
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 001 Anatomy, Anthropology, Embryology and Histology
021 Developmental Biology and Teratology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Histological changes in **cultured** neonatal skeletal muscle tissue at the early stage of cartilage induction by syngeneic insoluble bone matrix gelatin (BMG) containing bone morphogenetic protein were examined by light and electron microscopy. Minced skeletal muscle was **cultured** on hemicylindrical pieces of BMG for 14 days. Chondroblasts first appeared in the crevices of the BMG on Day 7 of the **culture**, and cartilage tissue was seen to fill the crevices completely by Day 10. The main findings in this work are as follows: 1) the activation of **satellite** cells and necrosis of myonuclei; 2) the migration of **satellite** cells from the basement membrane; 3) **fibroblasts** with increased numbers of organelles between degenerated muscle fibers closely resembling the migratory **satellite** cells; 4) the migration of the spindle-shaped cells into the crevices of the BMG; and 5) change of the spindle-shaped cells to chondroblasts. These findings suggest that neonatal skeletal muscles, which appear more mature than embryonic muscles, also have a chondrogenetic potential when grown on BMG, and that chondroblasts originate from the spindle-shaped cells which are thought to result from migratory **satellite** cells as well as **fibroblasts**.

L30 ANSWER 68 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 52
ACCESSION NUMBER: 1991:240987 CAPLUS
DOCUMENT NUMBER: 114:240987
TITLE: Indirect angiogenic agents do not release fibroblast growth factors from extracellular matrix
AUTHOR(S): Terrell, Grace E.; Swain, Judith L.
CORPORATE SOURCE: Med. Cent., Duke Univ., Durham, NC, 27710, USA
SOURCE: Matrix (Stuttgart) (1991), 11(2), 108-14
CODEN: MTRXEH; ISSN: 0934-8832
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Vascular growth factors are categorized as either primary or secondary angiogenic factors. Primary angiogenic agents such as **fibroblast** growth factors, not only induce the complete angiogenic response, but also stimulate the individual components of vascular growth. Secondary angiogenic agents can induce vascular growth, but they do not act through the direct stimulation of endothelial proliferation, migration, and protease prodn. Since **fibroblast** growth factors are known to bind to components of the extracellular matrix, it was detd. if secondary agents act through liberating growth factors from matrix storage sites. The study utilized L6 **skeletal myoblasts** in **culture**, which were capable of synthesizing extracellular matrix contg. heparin-binding endothelial mitogens. The heparin-binding mitogenic activity accumulated in a time-dependent fashion, and matrix exts. contained a protein with immunol. identity to acidic **fibroblast** growth factor. The ability of secondary angiogenic agents and related compds., including adenosine, inosine, hypoxanthine, nicotinamide, lactic acid, phorbol esters, PGE2, and Cu (at concns. of 1 .mu.M and 1 mM), to release heparin binding mitogenic activity from the matrix was evaluated. Although heparin is capable of releasing heparin-binding growth factors from extracellular matrix storage sites in a dose-dependent fashion, none of the known secondary angiogenesis factors are capable of functioning in a similar fashion. Thus these secondary angiogenic factors do not appear to exert their effect through increasing the bioavailability of preformed heparin-binding growth factors sequestered in the extracellular matrix. The mechanism(s) whereby these agents induce vascular growth remains to be elucidated.

L30 ANSWER 69 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 53
ACCESSION NUMBER: 1992:125495 CAPLUS
DOCUMENT NUMBER: 116:125495
TITLE: Changes in gene expression and DNA methylation in adrenocortical cells senescing in culture
AUTHOR(S): Hornsby, Peter J.; Yang, Lianqing; Raju, Satyanarayana G.; Cheng, Charles Y.
CORPORATE SOURCE: Dep. Biochem. Mol. Biol., Med. Coll. Georgia, Augusta, GA, 30912, USA
SOURCE: Mutat. Res. (**1991**), 256(2-6), 105-13
CODEN: MUREAV; ISSN: 0027-5107
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Recent expts. in **cultured** bovine adrenocortical cells show that the previously obsd. phenotypic switching of CYP17 (steroid 17.alpha.-hydroxylase) expression is preceded at a much earlier time by changes in methylation in the CYP17 5' flanking region. Two CpG sites that are methylated in the adrenal cortex in vivo were obsd. to undergo rapid demethylation when adrenocortical cells were placed in **culture**. Two adjacent CpG sites that are also methylated in vivo did not demethylate; these 2 sites are completely nonmethylated in **fibroblasts**. All CpG sites downstream, in the promoter or coding region, are always methylated in all tissues and in bovine adrenocortical cells even after many population doublings in **culture**. In contrast to the specific and rapid demethylation of sites in CYP17, **satellite** I shows a slower and apparently random loss of methylation that extends over the entire replicative life span. These changes in methylation provide examples of genetic instability in cells that undergo senescence in **culture**. Future expts. will focus on the relationship of these events to the phenotypic switching process.

L30 ANSWER 70 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 54
ACCESSION NUMBER: 1990:132718 CAPLUS
DOCUMENT NUMBER: 112:132718
TITLE: Acidic and basic fibroblast growth factor mRNAs are expressed by skeletal muscle satellite cells
AUTHOR(S): Alterio, Jeanine; Courtois, Yves; Robelin, Jacques; Bechet, Daniel; Martelly, Isabelle
CORPORATE SOURCE: Unite Rech. Gerontol., INSERM, Paris, 75016, Fr.
SOURCE: Biochem. Biophys. Res. Commun. (**1990**), 166(3), 1205-12
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB It was postulated that **fibroblast** growth factor (FGF) involved in fetal or regenerative morphogenesis of skeletal muscle originated from this tissue. Using a bovine retina cDNA probe encoding acidic FGF, it was shown that growing muscles from bovine fetuses express this mRNA, but that this expression is reduced in neonate muscle. **Cultures** of proliferating **satellite** cells isolated from adult rat muscle expressed aFGF mRNA strongly but bFGF mRNA weakly; these mRNAs disappeared in cells differentiated into myotubes . At 10-7M, 12-O-tetradecanoyl phorbol-13-acetate (TPA) increased aFGF mRNA expression in both proliferating and differentiate **satellite** cells. Contrastingly, proliferating L6 myogenic cells only expressed aFGG mRNA significantly under TPA treatment. Therefore, the **satellite** cells did seem to be a possible source for FGF, esp. aFGF, which might regulate the myogenic process.

L30 ANSWER 71 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 55
ACCESSION NUMBER: 1990:172187 CAPLUS
DOCUMENT NUMBER: 112:172187
TITLE: Effects of phenethanolamines and propranolol on the proliferation of cultured chick breast muscle satellite cells
AUTHOR(S): Grant, A. L.; Helferich, W. G.; Merkel, R. A.; Bergen, W. G.
CORPORATE SOURCE: Dep. Anim. Sci., Michigan State Univ., East Lansing, MI, 48824, USA
SOURCE: J. Anim. Sci. (**1990**), 68(3), 652-8
CODEN: JANSAG; ISSN: 0021-8812
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Satellite** cells were isolated from 20-day embryonic chick breast muscle via a Percoll d. gradient fractionation technique. Culturing these cells gave rise to .gtoreq.89% fusion (myotube nuclei no./total nuclei no.). The proliferation of **cultured satellite** cells (indicated by myotube nuclei no.) was increased in a concn.-dependent manner when **fibroblast** growth factor was included in the medium (25-200 ng/mL). Similar **cultures** were used to examine the effects of the phenethanolamine-type .beta.-adrenergic agonists ractopamine and isoproterenol on **satellite** cell proliferation. Ractopamine and isoproterenol increased myotube nuclei no. vs. that in control **cultures** by 2.3 and 2.1 times, resp. Similar differences were obsd. in total nuclei no. The no. of myotube nuclei in **cultures** treated with 10-6M ractopamine or isoproterenol was

reduced when propranolol, a .beta.-adrenergic antagonist, was included at 10-5M. Thus, ractopamine and isoproterenol enhance the proliferative activity of chick **satellite** cells in **culture** and .beta.-adrenergic receptors mediate this proliferative effect.

L30 ANSWER 72 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 56
ACCESSION NUMBER: 1990:475409 CAPLUS
DOCUMENT NUMBER: 113:75409
TITLE: Intracellular distribution of the c-fos antigen during the cell cycle
AUTHOR(S): Rahm, Magnus; Hultgaardh-Nilsson, Anna; Jiang, Wei-Qin; Sejersen, Thomas; Ringertz, Nils R.
CORPORATE SOURCE: Med. Nobel Inst., Karolinska Inst., Stockholm, S-104 01, Swed.
SOURCE: J. Cell. Physiol. (1990), 143(3), 475-82
CODEN: JCLLAX; ISSN: 0021-9541
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The subcellular localization of the c-fos proto-oncogene product was studied in the G1, S, G2, and mitotic phases of the cell cycle by indirect immunofluorescence. For these analyses c-fos transfected L6J1 rat **skeletal myoblasts** and adult rat aortic smooth muscle cells in secondary **culture**, and c-fos and c-myc cotransfected mouse Swiss 3T3 **fibroblasts** were used. During G1, S, and G2, the c-fos protein was evenly distributed in the nucleus, with exclusion of the nucleoli. In mitotic prophase the c-fos antigen was dissocd. from the condensed chromosomes and became diffusely distributed in the cell cytoplasm, where it remained until telophase, when, again, it appeared to be assocd. with chromatin in the re-assembling nucleus. When comparing the subnuclear distribution of the c-fos product with that of densely packed DNA, stained with the fluorochrome Hoechst, an inverse relationship was found. Dispersed chromatin regions with weak Hoechst DNA fluorescence showed a stronger fos immunofluorescence than regions that contained a higher concn. of DNA. The localization of c-fos antigen partially overlapped with that of antigens typical of small nuclear ribonucleoprotein complexes participating in transcription and splicing. Immunofluorescence anal. showed that the majority of micronuclei were fos-pos. Possible roles of the c-fos proto-oncogene product are discussed in relation to other nuclear antigens.

L30 ANSWER 73 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 57
ACCESSION NUMBER: 1991:199971 CAPLUS
DOCUMENT NUMBER: 114:199971
TITLE: Proliferating satellite cells express acidic fibroblast growth factor during in vitro myogenesis
AUTHOR(S): Groux-Muscatelli, B.; Bassaglia, Y.; Barritault, D.; Caruelle, J. P.; Gautron, J.
CORPORATE SOURCE: Lab. Biotechnol. Cell. Eucaryotes, Univ. Paris-Val de Marne, Creteil, Fr.
SOURCE: Dev. Biol. (1990), 142(2), 380-5
CODEN: DEBIAO; ISSN: 0012-1606
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Recent in vitro studies have indicated that the proliferation of **satellite** cells, which are involved in muscular regeneration in vivo, is stimulated by exogenous addn. of **fibroblast** growth factor (FGF). Evidence is presented that **satellite** cell **cultures** produce acidic, but not basic FGF. Acidic or basic FGF content was measured by enzyme immunoassay on cellular exts. after partial purifn. by heparin-Sepharose chromatog. During maximal cell proliferation, the level of acidic **fibroblast** growth factor (aFGF) increased > 5-fold over the values obtained before plating. The aFGF content drastically dropped at the postmitotic stage to almost the threshold of detection, and remained weak as differentiation was completed. The immunolocalization of aFGF using highly purified anti-aFGF antibodies confirmed these results and indicated that aFGF was cytoplasm- or membrane-assocd. Thus, an endogenous prodn. of aFGF by **satellite** cells may trigger cell proliferation by an intra- or autocrine mechanism, and therefore play an important role in muscular regeneration.

L30 ANSWER 74 OF 145 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 58
ACCESSION NUMBER: 1990:233749 CAPLUS
DOCUMENT NUMBER: 112:233749
TITLE: Indirect inhibition of myocyte RNA and protein synthesis by interleukin-1
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CORPORATE SOURCE: Div. Cardiol., Oregon Health Sci. Univ., Portland, OR, 97201, USA
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AB Sol. mediators of the inflammatory response may directly influence myocardial function and metab. in the absence of myocardial cell necrosis. Previous reported exptl. data have demonstrated that the monokine interleukin-1 (IL-1) can produce myocardial depression and may influence muscle protein metab. To further investigate this hypothesis, IL-1 was added to neonatal rat cardiac muscle cell (MC) **cultures** with and without addnl. rat cardiac non-muscle cells (NMC). Incorporation of [3H]uridine or [4C]phenylalanine into acid-insol. material was utilized as a measure of RNA or protein synthesis. IL-1 in concns. of up to 500 units/mL had no effect on MC RNA or protein synthesis. When NMC were added to the MC **culture**, IL-1 exhibited a concn.-dependent inhibition of both RNA and protein synthesis, with effects apparent at concns. as low as 5 units/mL. Supernatants from IL-1 treated NMC **cultures** exerted a dose dependent redn. on the incorporation of radiolabeled precursor into MC **cultures**, suggesting prodn. of a sol. substance mediating the IL-1 effect. Supernatants from IL-1 treated rat skin **fibroblasts** or rat **skeletal** muscle **myoblasts** increased MC radiolabeled precursor incorporation slightly, in contrast to the decrease seen with NMC supernatant. Furthermore, IL-1 treated NMC supernatant had no inhibitory effect on **skeletal myoblasts**. Thus, IL-1 decreases protein and RNA synthesis in MC **cultures** through a second mediator elaborated from the NMC population.

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TITLE: SV40 immortalizes myogenic cells: DNA synthesis and mitosis in differentiating myotubes
AUTHOR(S): Iujvidin, Sonia; Fuchs, Ora; Nudel, Uri; Yaffe, David

CORPORATE SOURCE: Dep. Cell Biol., Weizmann Inst. Sci., Rehovot, 76100, Israel
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AB Primary **skeletal** muscle **myoblasts** have a limited proliferative capacity in cell **culture** and cease to proliferate after several passages. This study examd. the effects of several oncogenes on the immortalization and differentiation of primary **cultures** of rat **skeletal** muscle **myoblasts**. Retroviruses contg. a SV40 large T antigen (LT) gene very efficiently immortalize myogenic cells. The immortalized cell lines retain a very high differentiation capacity and form, in the appropriate **culture** conditions, a very dense network of muscle fibers. As in primary **culture**, cell fusion is assocd. with the synthesis of large amts. of muscle-specific proteins. However, unlike normal myoblasts (and previously established myogenic cell lines), nuclei in the multinucleated fibers of SV40-immortalized cells synthesize DNA and enter mitosis. Thus, withdrawal from DNA synthesis is not obligatory for cell fusion and biochem. differentiation. Using a retrovirus coding for a temp.-sensitive SV40 LT, myogenic cell lines were produced in which the SV40 LT could be inactivated by a shift from 33.degree. to 39.degree.. The inactivation of LT induced massive cell fusion and synthesis of muscle proteins. The nuclei in those fibers did not synthesize DNA, nor did they undergo mitosis. This approach enabled the reproducible establishment of myogenic cell lines from very small populations of myoblasts or single primary myogenic clones. Activated p53 also readily immortalized cells in primary muscle **cultures**; however, the cells of 8 out of the 9 cell lines isolated had a **fibroblastic** morphol. and could not be induced to form multinucleated fibers.

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